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CONTRIBUTION TO THE SURGERY OF BONES, JOINTS AND TENDONS

JOHN B. MURPHY, A.M., M.D., LL.D.
President of the American Medical Association
CHICAGO

In treating this subject I have divided the work into three distinct groups, and will present it as three separate papers, each one, however, interdependent on the others. In order that the genetic elements may be more readily appreciated, it is essential that I mention, in a cursory way, at least, elemental embryologic, histologic and anatomic factors at the beginning of each separate paper.

These papers constitute only an illustrative synopsis of the work as it would be impracticable to publish it in THE JOURNAL in full. It will appear in its entirety in a monograph later.

SURGERY OF BONES

ANATOMY AND EMBRYOLOGY OF BONE

Grossly, bones are divisible into four classes: long, short, flat and irregular. The long bones are found in the limbs, where they form a system of levers which have to sustain the weight of the body and confer the power of locomotion. The shaft of a long bone is contracted and narrowed to afford greater space to the bellies of the muscles. The extremities are generally somewhat expanded for greater convenience of motor connection, for the purpose of articulation and to afford a bony surface for muscular attachment. The long bones are not straight, but curved, the curve generally taking place in two directions, thus affording greater strength to the bone.

Where a part of the skeleton is intended for strength and compactness, and its motion is at the same time slight and limited, it is divided into a number of small pieces united by ligaments, and the separate bones are short and compressed. The patella and the other sesamoid bones may be regarded as short bones.

Where the principal requirement is that of extensive protection or the need of large bony surfaces for muscular attachment, we find the osseous structure expanded into flat bony plates, as is the case in the bones of the skull and scapula. In the cranial bones there are layers of compact tissue known as tables. The outer table is thick and tough; the inner table is thinner, denser and more brittle, and hence termed the vitreous table, while the intervening cancellated tissue is called the diploë. The irregular bones are those which, because of their peculiar form, cannot be grouped under any of the preceding heads. Their structure is similar to that of the cranial bones, consisting of a layer of compact tissue externally, with spongy tissue underneath.

Studying more minutely the structure of bone, we find that it nearly always develops from a connective tissue foundation, even when it occurs in places formerly occupied by cartilage. The inorganic substance of the bone is compressed in or between the fibers of connective tissue, while the cells of the latter are transformed into bone cells.

As in connective tissue, so in bones, the ground substance is fibrous. Between the fibers are uncalcified cells, bone cells, each of which rests in a cavity of the matrix, called a lacuna.

Primarily, bone consists of a single thin lamella, its later complicated structure being produced by the formation of new lamellæ in apposition to the first. During its development the bone becomes vascularized, and the vessels are enclosed in especially formed canals, known as haversian canals.

The bone cells have processes that anastomose with the processes of other cells. They lie in special canals known as canaliculi (Fig. 1).

The appearance presented by a transverse section of a shaft of a long bone is as follows: In the center is a large marrow cavity, and at the periphery the bone is covered with a dense connective tissue membrane, the periosteum. In the new-born, and in young individuals, the periosteum is composed of three layers, the outer layer consisting mainly of rather coarse white fibrous tissue, a middle fibro-elastic layer, and an inner osteogenetic layer. The latter is vascular and rich in cellular elements. In the adult, the osteogenetic layer has practically disappeared, leaving here and there a few of its cells, a factor that must be reckoned with in every effort at osteal transplantation or grafting. While the fibro-elastic layer is correspondingly thicker, a large number of haversian canals containing blood-vessels, seen mostly in transverse sections, are found in compact bone-tissue. Lamellæ of bone are plainly visible throughout the ground substance and are arranged in the following manner:

First, there is a set of bone lamellæ running parallel to the external surface of the bone, while another set is similarly arranged around the marrow cavity. These are the so-called fundamental lamellæ, known also as periosteal and marrow lamellæ, or outer and inner circumferential lamellæ. Around the haversian canals are the concentrically arranged lamellæ, forming systems of haversian lamellæ. Besides the systems already mentioned there are found interstitial lamellæ wedged in between the haversian systems of lamellæ. Scattered between the lamellæ are found the spaces known as lacunæ, containing the bone-cells (Fig. 2).

It is very probable that all lamellæ are in more or less direct communication with each other by means of the

fine canals or canaliculi. The canaliculi of the haversian lamellæ empty into the haversian canals. The lamellæ of bone are composed of fine white fibrous tissue fibrils imbedded in a ground substance in which they are arranged in layers superimposed in such a way that the fibers in the several layers cross at a right angle, forming an angle of 45 degrees with the long axis of the haversian canal. It is as yet undecided whether the mineral salts are deposited in the ground substance or in the fibrillæ.

In each lacuna there is found a bone-cell, the nucleated body of which practically fills the lacuna, while its processes extend out into the canaliculi.

The haversian canals contain blood-vessels, either an artery or a vein, or both. Between the vessels and the walls of the canals are perivascular spaces bounded by endothelial cells. Into these spaces empty the canaliculi of the haversian system. All the lacunæ and canaliculi

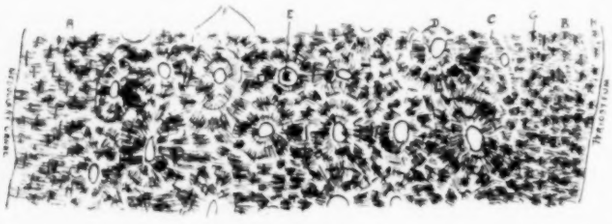

Fig. 1.—Cross-section of long or compact bone showing (A) inner and (B) outer circumferential lamellæ. (C), interstitial lamellæ; (D), haversian lamellæ; (E), haversian canals; (F), haversian system; (G), bone-cells lying in lacunæ; (H), canaliculi. (After Piersol.)

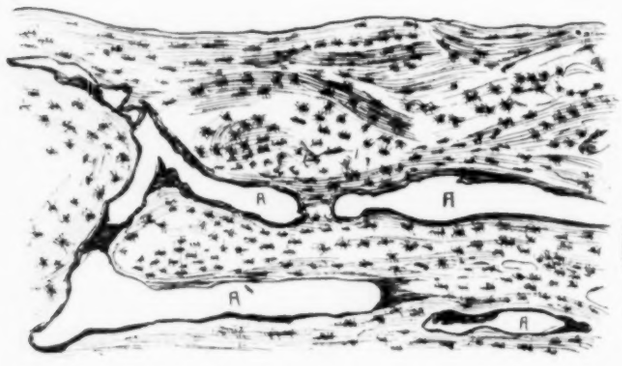

Fig. 2.—Longitudinal section of long or compact bone showing the haversian canals (A) and the lamellæ with lacunæ and canaliculi between them. (After Piersol.)

should be considered as filled by lymph plasma which circulates throughout the bone, bathing the bone-cells and the processes (Fig. 3).

The marrow not only fills up the cylindrical cavity in the center of the shaft of the long bones, but also fills the spaces of the cancellous tissue and extends into the haversian canals. It varies in composition in different bones. In the shaft of the adult long bone the marrow is yellow, contains areolar tissue and vessels, and consists of a matrix of fibrous tissue supporting the blood-vessels. In short and flat bones and in the articular ends of the long bones the composition is somewhat different, consisting of seventy-five parts of water and twenty-five parts of solid matter. In the marrow numerous cells are found, known as the marrow cells of Kölliker. They resemble in appearance lymphoid corpuscles. Among them may be seen the smaller cells, the normoblasts, from which the red corpuscles are derived

DEVELOPMENT OF BONE

In the study of the embryology of the fetal skeleton it is found that some bones are formed from a white fibrous elastic membrane, such as those forming the roof and sides of the skull. Others, such as the bones of the extremities, are formed from cartilage. Hence, two kinds of ossification are described, intrafibrous or intramembranous, and intracartilaginous.

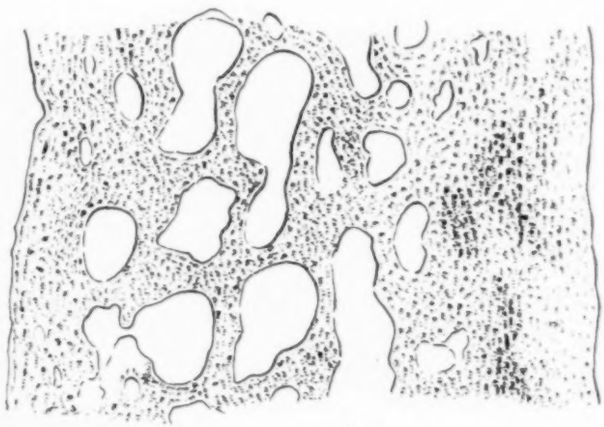

Fig. 3.—Cross-section of a flat or cancellous bone (frontal) showing spaces which normally contain red marrow and the cancellous or porous structure of the bone. These bones do not contain lamellæ or haversian canals. The outer and inner portions are more compact than the intervening or central portion. The former are known as outer and inner tables; the center, diploë. (After Piersol.)

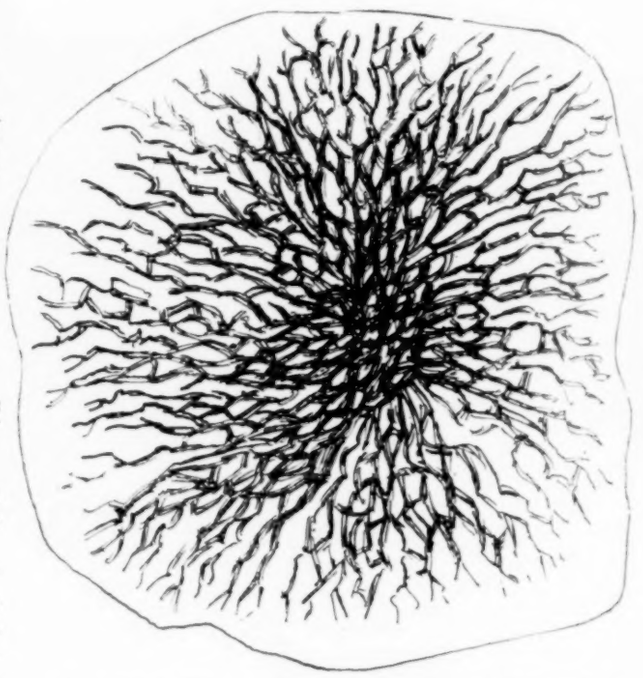

Fig. 4.—A developing flat bone showing ossifying process proceeding outward from the center of ossification. The branching radiating lines represent the ossifying connective tissue fibers on which osteoblasts are being deposited. The intervening spaces will eventually contain red marrow. (After Piersol.)

Intrafibrous Ossification.—In the case of bones which are developed from membranes, no cartilaginous mold or stage precedes the appearance of the bone tissue. The membrane which occupies the place of the future bone is of the nature of connective tissue, and ultimately forms the periosteum. The outer portion is more fibrous than the internal, in which the cells or osteoblasts pre-

dominate. The whole tissue is richly supplied with blood-vessels.

At the onset of the process of bone formation, a little network of bony spiculæ is first noticed, radiating from the point or center of ossification. Microscopically, it consists of a network of fine clear fibers with an intervening ground substance (Fig. 4). These are termed osteogenetic fibers. They soon take on a dark and granular appearance from the deposit of calcareous granules in the fibers and the intervening matrix. As they calcify, they are found to enclose some of the granular corpuscles or osteoblasts. The latter form the corpuscles of the future bone, and the spaces in which they are enclosed are the lacunæ. As the osteogenetic cells grow to the periphery they calcify and then give rise to fresh bone spiculæ.

Thus a network of bone is formed, the meshes of which contain the blood-vessels and a delicate connective tissue crowded with osteoblasts. These bony spiculæ thicken by the accretion of layers formed by the osteoblasts and the meshes become smaller. Subsequently, separate layers of bony tissue are deposited in the periosteum and around the large vascular channels.

Intracartilaginous Ossification.—Just before ossification begins to take place, the bone is entirely cartilaginous, and in the long bone the process commences in the center (shaft ossification) and proceeds toward the extremities, which for some time remain cartilaginous. Subsequently, a similar process commences in one or more places in these extremities (epiphyseal ossification), and gradually extends from them. The extremities do not, however, become joined to the shaft by bony tissue until growth is completed, but are attached to it by a layer of cartilaginous tissue termed the epiphyseal cartilage.

The first step in the ossification of cartilage is the enlargement of the cartilage cells, which arrange themselves in rows at a point termed the center of ossification. The matrix in which they are imbedded increases in quantity, so that the cells become farther separated from each other. A deposit of calcareous matter now takes place in this matrix, between the rows of cells, so that they become separated by longitudinal columns of calcified matrix, presenting a granular and opaque appearance. Here and there the matrix between two cells of the same row also becomes calcified and the transverse bars of calcified substance stretch across from one calcareous column to another. Thus, there are longitudinal growths of the cartilaginous cells enclosed in oblong cavities, the walls of which are formed of calcified matrix, which cuts off all connection between the cells, and they form spaces called the primary areolæ.

At the same time that this process is going on in the center of the solid bar of cartilage of which the fetal bone consists, certain changes are taking place on its surface. This is covered by a vascular membrane, the perichondrium, on the inner surface of which, that is to say, on the surface in contact with the cartilage, are gathered the formation cells (genetic cells), the osteoblasts. By these cells a thin layer of bony tissue is formed between the perichondrium and the cartilage. There are in this first stage of ossification two processes going on simultaneously — in the center of the cartilage the formation of a number of oblong spaces, and on the surface of the cartilage the formation of a layer of true bone.

The second stage consists of the prolongation into the cartilage of processes of the osteogenetic layer of the perichondrium, which has now become periosteum. The processes consist of blood-vessels and cells, osteoblasts or bone formers, and osteoclasts or bone-destroyers. The latter are similar to the giant cells found in the marrow. They excavate passages through the new-formed bony layers and grow through into the calcified matrix.

Wherever these processes come in contact with the calcified walls of the primary areolæ they absorb them, and thus cause assimilation of the original cavity and the formation of larger spaces, known as medullary spaces. These spaces become filled with embryonic marrow, consisting of vessels carrying osteoblasts on their walls, and derived in the manner described above from the osteogenetic layer of the periosteum. The walls of these medullary spaces are at this time of inconsiderable thickness, but they become thickened by the deposit of layers of new bone in their interior in the following manner:

Some of the osteoblasts arrange themselves as an epithelioid layer on the surface of the wall of the canal.

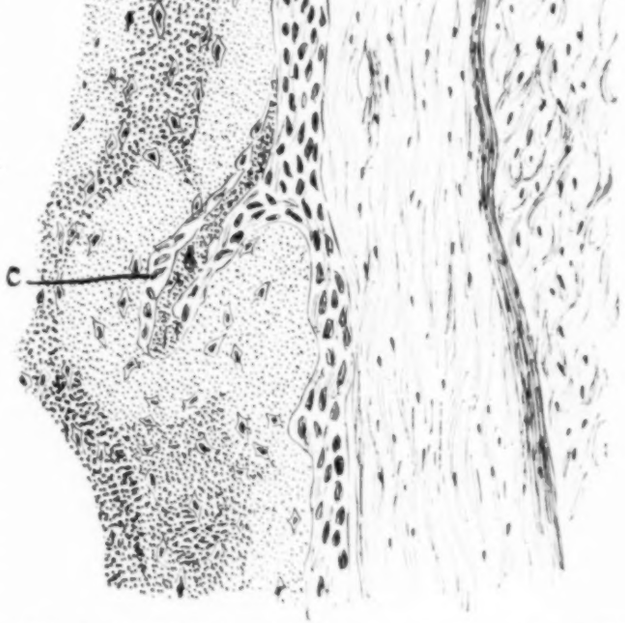

Fig. 5.—Longitudinal section of young periosteum showing the outer fibrocellular layer (A) and the inner cellular or osteogenetic layer (B) which plays an active rôle in bone formation. At C is seen a so-called periosteal bud consisting of osteoblasts, nerves and blood-vessels. This bud is growing into the cartilaginous matrix, depositing bone as it proceeds inward. (After Pierson.)

This forms a bony stratum and thus the space becomes gradually covered with a layer of true osseous substance. By the repetition of this process, the original cavity becomes very much reduced in size, and at last remains a small circular hole, containing blood-vessels and a few osteoblasts. This small cavity constitutes the haversian canal of the perfectly ossified bone. These canals play the most important rôle in the osteogenesis of transplanted or grafted bone fragments; in fact, they are absolutely necessary to the regeneration of bone in a graft. For that reason I have gone into the minute histology of their osteogenetic changes and potency.

Other changes may be observed at the centers of ossification. A similar process has been set up elsewhere and has been gradually proceeding toward the end of the shaft, so that in the ossifying bone all the changes

described above may be seen in different stages, from the true bone in the center of the shaft to the hyaline cartilage at the extremity.

This process of ossification, however, is not the origin of the whole of the skeleton, for even in the bones in which the ossification proceeds in a great mass from a single center situated in the cartilaginous shaft of a long bone, a considerable part of the original bone is formed by intramembranous ossification beneath the perichondrium. The shaft of the bone is at first solid, but later a tube is hollowed out in it by absorption around the vessels passing into it, and this tube becomes the medullary canal. This medullary canal, with the haversian canals, lacunæ, canaliculi and the deep periosteal layer, forms a continuous network, the spaces of which are filled with the essential medullary structures — fat, blood, lymphatics, osteoblasts and osteoclasts. They form the "genetic tree" of bone production, reproduction and absorption.

This absorption is attributed to the activities of the osteoclasts, which vary in shape and size and are recognized by their large number of clear nuclei. The presence of similar cells in some bone tumors has led to the designation "myeloid" tumors. These are the cells that remove the transplant or bone graft as ossification advances in it by the osteoblasts in the genesis of the new bone to supplant the graft.

As more and more bone is removed by this process of absorption, and the medullary canal becomes larger, so more and more bone is deposited on the exterior from the periosteum, until at length the bone has attained the shape and size which it was destined to retain during adult life.

As the ossification of the cartilaginous shaft extends, the articular ends of the cartilage grow as they ossify, and thus the bone is increased in length. The epiphysis remains for some time entirely cartilaginous; then a bony center appears in it, in which occurs the same process of intracartilaginous ossification as described above. The epiphysis remains separated from the shaft by a cartilaginous layer for a definite time. This layer ultimately ossifies and the bone assumes its complete form and shape. This cartilaginous layer — epiphyseal line — inhibits the advancement of infective processes which originate in the epiphysis of bone, such as tuberculosis, from passing into the shaft, and also inhibits the acute osteomyelitic infections, which always originate in the shaft, from passing into the epiphysis or into the joint.

It plays a major rôle in the control and guidance of the infective processes in bones, which must be clearly understood to appreciate the action of pathologic processes in the bone. It is a barrier of non-infectible cartilaginous material. The same remarks also apply to the processes of bone which are separately ossified, such as the trochanters of the femur.

The bones which have been formed continue to grow until the bone has acquired its full growth. The number of ossific centers varies in different bones. In most short bones ossification commences at a single point in the center and proceeds toward the periphery. In the long bones there is a center of ossification for the shaft and one or more for each extremity. The ossifying center for the shaft is the first to appear.

The union of the epiphysis with the shaft takes place in the reverse order to that in which the ossification begins, with the exception of the fibula, and appears to be regulated by the direction of the nutrient artery of the bone. Thus, the nutrient artery of the bones of the arm and forearm is directed toward the elbow and the epiphyses of the bones forming this joint become united to the shaft before those at the opposite extremity. This accounts for the early invasion of the elbow by the pathologic processes which originate in the shaft of the humerus or ulna, and for the shaft involvement in processes beginning in the epiphysis, which is true only in this joint.

In the lower limb, on the other hand, the nutrient arteries pass in a direction from the knee, that is,

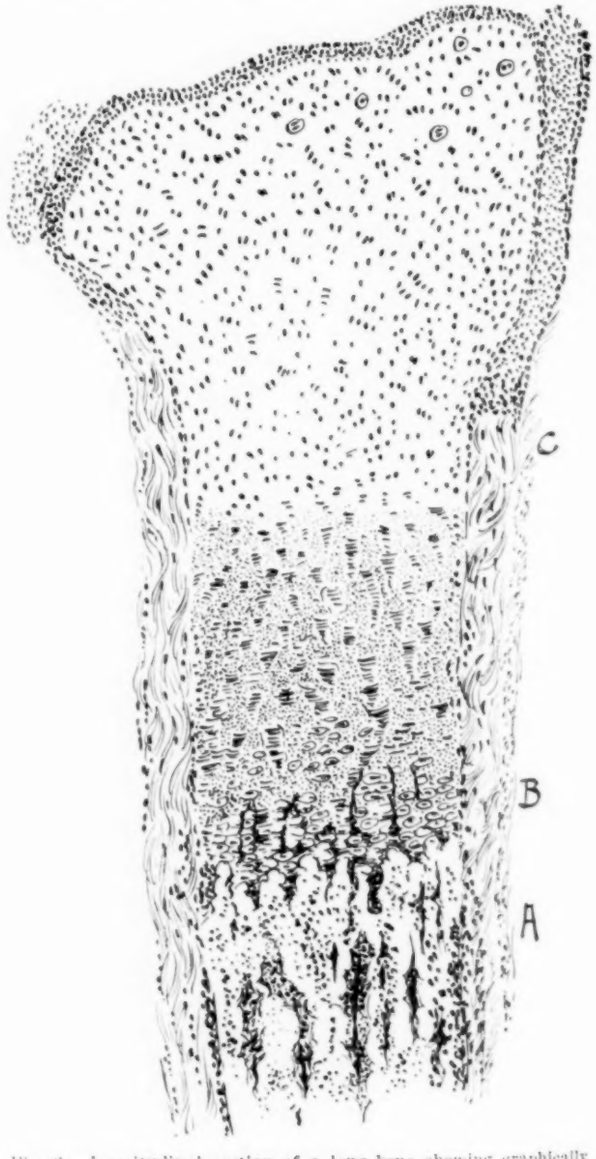

Fig. 6.—Longitudinal section of a long bone showing graphically the various stages of bone development as proceeds from the ossification center in the shaft or diaphysis of the bone toward the epiphysis. At A is seen the enlargement and columnar arrangement of the cartilage-cells and the beginning of ossification. At B there is only the cartilage-cell change. At C the cartilage has not as yet taken any part in the bone development. (After Piersol.)

upward in the femur, downward in the tibia and fibula, and in them it is observed that the upper extremities of the femur and the lower epiphysis of the tibia and fibula become first united to the shaft. Where there is only one epiphysis, the medullary artery is directed toward that end of the bone in which there is no additional center of ossification, as toward the acromial end of the clavicle, toward the distal end of the metacarpal bone of the thumb and great toe, and toward the prox-

imal end of the other metacarpal and metatarsal bones. Besides these epiphyses for the articular ends, there are separate centers of ossification for trochanters, tuberosities and condyles.

These centers of ossification and the epiphyseal line of osteogenesis must be borne in mind in every arthroplasty performed on persons under adult development, as any interference with the osteogenetic epiphyseal line causes deficiency of growth in length; or if part of the line is removed, deviations in conformation often occur.

INDICATIONS FOR BONE TRANSPLANTATION

In order to achieve the best results in the work of bone-grafting and bone transplantation, the following laws must be observed:

I. The periosteum fully detached from bone and (1) transplanted into a fatty or muscle-tissue bed in the same individual, if he be young, may produce a lasting bone deposit; (2) transplanted into another individual or animal of the same species and under the same conditions, it rarely, if ever, produces a permanent bone deposit; (3) transplanted into another species it never produces a permanent bone deposit.

II. Periosteal strips elevated at one end from the bone and attached at the other, if turned out into muscle or fat, reproduce regularly bone on their under surface for a greater portion of their entire length.

III. Transplanted into other individuals or animals of same species and contacting at one end with exposed or freshened bone it rarely produces permanent bone, even for a small extent at its basal attachment, and never produces bone for its full length.

IV. Bone with its periosteum transplanted into muscle, fat, etc., in the same individual, and free from bony contact, practically always dies and is absorbed, except in the case of very young children or infants. Transplanted into another species it is always absorbed.

V. Bone transplanted without the periosteum into the muscle or cellular tissue always dies and is ultimately absorbed.

VI. Bone with or without periosteum transplanted in the same individual and contacted with other living osteogenetic bone at one or both of the ends of the transplanted fragment always becomes united to the living fragments and acts as a scaffolding for the reproduction of new bone of the same size and shape as the transplanted fragment if asepsis is attained. This new bone increases to such size as is necessary to give the support required by Nature in the extremity in which it has been placed. It will scaffold the production of new bone even into the joint when it is surrounded by capsule, and tuberosities are produced in about the regular location, as in the normal anatomic conformation.

VII. The transplanted fragment, no matter how large or how small, is always ultimately absorbed. The rôle it plays is to give mechanical support to the capillaries and blood-vessels with their living osteogenetic cells, as they advance from the living bone at both ends of the transplanted fragment into the haversian canals, canaliculi and lacunæ of the transplant. New lamellæ are deposited around the new capillaries and these lamellæ fit into and adjust themselves in the graft, so that the bony union is actually formed and mechanical support given long before the transplant is entirely absorbed and replaced by new bone. Ultimately all of the transplant disappears as new lamellæ are formed by the osteoblasts, and the graft lamellæ are removed by the osteoclasts.

This conclusion is based on my observations and on analysis of the microphotographs and pathologic specimens, clinical and experimental, presented by others. The graft is *per se* not *osteogenetic*, but *osteoconductive*. The regenerative force and cells are entirely supplied from the osteogenetic cells on the capillaries growing from the living bone. The graft, however, is an absolute necessity in the regeneration.

VIII. The graft increases in size on the surface as bone increases in size histologically, i. e., by deposits beneath its newly-formed periosteum.

IX. The muscles should be fixed or directed to the graft in the same relation as the normal anatomic fixation, if the muscular control is expected after the graft has become united, and the musculotendinous attachments should be accurately sutured to the graft at the point of desired union, either with catgut or phosphor-bronze wire.

X. Bone covered at the ends by cartilage and on the sides by periosteum, such as the phalangeal bones, even when contacting with living bone denuded of periosteum, dies, and is wholly absorbed. When the graft is covered with periosteum at the point of contact with the living bone, the haversian vessels do not penetrate the fibrous periosteum of the transplant, and regeneration fails. If the periosteum of the graft is split into shreds, then regeneration through it may take place.

XI. Periosteum attached to the transplanted portion, if the graft is taken from young individuals, has a plus osteogenetic influence; in the middle-aged it is neutral; in those of advanced years it plays a minus rôle and, in fact, it is detrimental.

While these theories may finally be found defective in some of their details, they represent my observations in the experimental and clinical work I have carried on. Bone reproduction, from a practical standpoint, is permanently and for all time settled both as to its feasibility and its practicability, and the extent to which it can be carried out to meet the mechanical conditions essential to its evolution.

The indications for bone transplantation are:

A. To correct deformities resulting from defects of development, as aplasic extremital bones — radius, ulna, humerus, tibia, fibula and femur, and congenital saddle-nose, aplasic mandible, etc.

B. To produce union in ununited fractures.

C. To replace bone removed by destructive infections, osteomyelitis, tuberculosis, lues, etc.

D. To restore or supplant fragments dislodged or destroyed by fractures, as the head of the humerus, head of femur, shaft of tibia, etc.

E. To replace bone removed for non-malignant neoplasms, cysts, myeloma, osteitis fibrosa, etc.

F. To replace bone removed for encapsulated malignant disease, as giant-cell and chondral sarcoma, etc.

A. Congenital or acquired defects of the nasal bones can be remedied by transplanting a periosteal covered fragment of the patient's ulna, tibia or fibula of such shape and size as is required to remedy the defect. The periosteal covering should be directed outward, and the free medullary margin of the bone inward.

The transplant must have a bony contact with the frontal bone itself, with a surface that is freed of periosteum, or with the nasal process of the frontal bone, or with the periosteum-free surface of the nasal bones. It must be fixed in this position.

The incision in these cases should be made on the side of the nose, and the flap elevated so that the graft will be completely covered with skin, and there will be no tendency to separation of the edges or exposure of the graft to air after its implantation. If possible, it is best

to make a small incision near the tip of the nose, and then elevate the periosteum and make a subcutaneous pocket extending from tip upward to the frontal bone. Into this pocket the transplant can be placed safely and securely and the opening then closed accurately. Phosphor-bronze wire or chromicized catgut may be used to secure the fragment. A long fragment of bone should always be prepared, and when it is inserted it can be cut to the desired size and fitted into its bed.

If the nasal or frontal sinuses are open, the operation should be abandoned for the time being, because if air comes in contact with the graft, the latter will become infected and necrotic, and it must subsequently be removed.

In 1899, I grafted the second phalanx from a case of dactylism into the nose. All the periosteum and both of the cartilaginous ends were retained. It healed in beautifully and for some months it seemed to be a perfect result. Within fourteen months the entire transplant had disappeared. The reason for this occurrence was that the graft was entirely covered with periosteum and cartilage, so that haversian vessel invasion from the nasal or frontal bones was not possible.

In 1901 I grafted the hypothenar eminence of the hand to the nasal bones by a two weeks' fixation of the hand to the head. I took with the graft the fifth metacarpal bone shaft and without bony contact it continued to live, because it was a part of a continuous living tissue transplant, and fulfilled the purpose for which it was intended.

In this case the bone retained its vitality because of its being contained within the fleshy flap. It did not become a dead fragment at any time, and therefore it did not need bony contact with the nasal or frontal bones.

The defects of the upper and lower extremities are supplied by taking the graft from the crest of the tibia of the same patient and implanting it into the desired position to restore the defect. Normal anatomic muscle, nerve and arterial relationship to the bone should be established at the line of implantation. The implant should contact with living bone at, at least, one end.

If the epiphysis has been destroyed, the bone will not grow in length from this implant at the point of epiphyseal absence, unless an epiphysis is transplanted. I have not yet demonstrated that a transplanted epiphyseal line of young bone will become osteogenetic. In the next case that presents itself with an absent epiphysis, I shall take the upper or lower end of the tibia with its epiphysis and transplant it, because I feel that in young individuals it should become osteogenetic.

If the entire shaft of the tibia, humerus, radius or ulna be absent, then the bone must contact with the neighboring bone laterally or at one or the other end of the extremity across the normal line of the joint in order to get its osteogenetic supply. Subsequently an arthroplastic joint can be made at the desired position.

(To be continued)

Heredity.—The doctrine of heredity should never be forgotten by parents or remembered by children. To the first it is the assertion of their responsibility; to the second a reminder of their helplessness. Fortunately our Darwinians and Weissmannians have between them left the doctrine in such a state that it is prudent for parents to believe the worst, and possible for children to hope the best. There is no man of science who will dare say that the child of the drunkard "must" take to drink, and none that will venture to tell the drunken parent that the child "won't suffer."—"Comments by Bagshot."

THE CHORUS-GIRL'S VOCAL TROUBLES

CHARLES PREVOST GRAYSON, M.D.
Clinical Professor of Laryngology, University of Pennsylvania
PHILADELPHIA

It is but seldom that the chorus-girl is made the subject of anything but jest, the target of cheap and too often coarse wit, and anything in the way of serious and sympathetic consideration is rarely given her. When we are consulted by the great artists of the lyric world, those who have had every educational advantage and whose throats are jealously guarded against every injurious influence, we are apt to be prodigal of our professional skill and our personal solicitude. We spare ourselves neither time nor thought nor trouble that may prove of service to them, and yet when this humble member of the same profession, the poor, inglorious girl of the chorus, ventures to enter our waiting-rooms, there are some of us, I fear, who are inclined to treat her more as a worthless derelict than as one who is deserving of our scientific interest and our conscientious care. I do not deny that she may be frequently responsible, through yielding to her social and convivial instincts, for much of her vocal failure, but, in spite of this, I cannot say with too much emphasis that of all the men and women who sing or play for a living, there is none who appeals so strongly to my compassion and even to my humanity as the chorus-girl. We all of us, no doubt, are perfectly willing to agree with the singing-master that from an elevated musical point of view she is vocally the exponent of all that is technically incorrect and inartistic, a pitiful and painful burlesque of the divine art of singing, and yet, from the more comprehensive and what should be the more charitable point of view of the laryngologist, we can nevertheless maintain that she is in reality the unfortunate victim of an uneducated and unrefined public that cares more for facial and corporeal than for vocal beauty—a public that would turn flashing eyes on Venus, but dull, unappreciative ears to Euterpe—a public, in fact, that in so far as the singing voice is concerned, is much more deeply impressed by an ear-splitting volume than by a pure and mellow quality of tone. If any premium were placed on the voice of the chorus-girl, if it were regarded as a valuable asset, it would be in all probability not only carefully trained, but carefully protected; but what is the discouraging truth? I think it very likely that of the fifteen or twenty dollars a week that she receives, the relative value of her voice should be quoted at about two dollars, and yet, poorly remunerated and cared for as she is, it is she who in the preparation and production of one of these so-called musical comedies from the very first rehearsal bears the brunt of the work. For three or four or more weeks, from 9 in the morning until very often long after midnight, with but brief intervals for a hasty meal, she is under the lash of the stage manager's tongue. She usually learns and sings her music wholly by ear and consequently fatigues her voice unnecessarily by having to go over her choruses many more times than would be required if she were anything of a reader. She practices "starts" at the stroke of the conductor's baton just as the sprinter practices them at the crack of the trainer's pistol. Few of these girls know enough to keep themselves in good general condition and therefore the end of an hour's work in dancing and ambling their way up and down and across the stage finds them with tired hearts and wet skins. The frequent calls for quick changes of costume send them to a dressing-room that is usually many degrees cooler than they are, and

even if it is not, its atmosphere is laden with talcum powder and the odors and dust left by hundreds of other chorus-girls on many of whom, perhaps, the curtain has long ago fallen for the last time. These are but a few of the physical and hygienic hardships with which these poor girls have to struggle, and although they are bad enough in the larger cities, yet they become even worse when the show has lost its drawing-power in these and it goes "on the road" with its "one-night stands," traveling night after night in our impossible sleeping-cars, playing at theaters which, from a sanitary standpoint, are scarcely comparable with the well-appointed modern stable, stopping at cheap and uncleanly boarding-houses, exposed to all sorts of weather and to but one sort of food — the worst.

What I have said at such length may be justly classified under the head of causation, and having mentioned these facts, I ask if it is not surprising, not that many of these young women come to us with seriously damaged throats, but rather that not all of them need our help and protective guidance frequently. Indeed scarcely enumerate the inevitable effects of such a life on so delicate and sensitive an organ as the larynx, but that the large majority of chorus-girls suffer at least from a more or less pronounced chronic laryngitis almost goes without saying. Even if there were no other predisposing or exciting causative factors, the almost universal ignorance among them as to both the principles and the practice of correct tone production would be sufficient of itself gradually to establish this simple laryngeal catarrh. And once provided with this pathologic bridge between health and disease, the other morbid events are apt to cross it in quick succession. It is but the question of a short time when the catarrhal hyperemia, instead of remaining limited to the surface, shall pass to the deeper submucous tissues. Coincidently the vocal cords become thickened, they lose the sharp, straight edge of health and in its stead we find one that is broader and at times almost fluted in its appearance because of the slight infiltration on its upper and under surfaces. Certainly it is bad enough even to talk with a larynx in this condition, but to sing or, to be accurate, to try to sing is simply to invite further disaster, and this speedily takes form in the involvement of certain muscles — first, the delicate tensors, the internal and external thyroarytenoids. Purity and brightness of tone have probably long since been lost, but now the voice begins to weaken, its compass is curtailed, certainty of intonation fails, and before long at some morning rehearsal the sharp tap of the conductor's stick is heard, the chorus halts and the girl is brusquely told that she is singing "off key." If she has been in the front row she soon moves to the rear and a fresher voice takes the place of hers. Of course, no life is without its great or little tragedies, but, however trivial and insignificant this one may seem to us, to the girl herself it means the blasting of all her hopes. Her ambitious dreams of some day singing a principal part, of having her name featured in the showbills, of becoming perhaps a prima donna of stellar radiance dictating to eager managers her own terms, all these vanish into thin air and she knows that she has fallen, like Wolsey, never to rise again. It will require but a few additional words to describe the final collapse of her singing voice and in all likelihood the termination of her stage career. She goes on for a little time longer perpetrating the few notes of her chest or middle registers that still remain to her, and then the cricothyroid and arytenoideus muscles abandon the struggle and go down in the general ruin, the air waste between the unapproximated cords increases, the secretory disturbance within the larynx provokes frequent hemming and an occasional dry cough, and finally, some night after the performance, the tender-hearted manager calls her aside and, with thinly veiled sarcasm, tells her that she is really too good for his show and that, though he hates to let her go, he cannot conscientiously keep her out of grand opera any longer.

However hopeless, at first view, the treatment of this type of undertrained and overworked throat may seem, yet if our patients be intelligent and clever enough—and few of them are not—to cooperate with us as far as they are able, a very great deal may be accomplished in retarding or even arresting the failure of their vocal powers. Whether early or late in the course of the catarrhal process, laryngeal rest is the most important aid to cure. The "silence treatment," which is of such invaluable assistance in the control of tuberculous laryngitis, would be of even greater efficiency in relieving the chorus-girl type of laryngeal catarrh, but, unfortunately, it is seldom practicable. Most of these girls enter the chorus not for the sake of diversion, but as a means of subsistence, and therefore a six weeks' or two months' rest in the middle of their season would be as impossible a luxury as a winter on the Nile. Usually the nearest approach to physiologic rest that we can obtain is to have the patient renounce altogether the conversational use of her voice and take advantage of every possible opportunity to spare her singing voice. If the score calls for notes beyond her easy reach she must avoid or, to adopt her own expression, "fake" them. In other words, her singing must be as pantomimic as possible, and if in this way she conscientiously shirks the vocal work that is expected of her, the good effects of our direct treatment of her throat will be much more completely and quickly secured. If there be one thing that should distinguish the direct or local treatment of the singer's throat, it should be, I think, its gentleness and simplicity. It surely must be very seldom that there can be either occasion or excuse for the adoption of such vigorous measures as might be perfectly legitimate in the catarrhal throat of the alcoholic, of the plethoric gourmand, or that of the yelping stock broker.

If, incidentally, I should venture to criticize anything, it would be the anything but exceptional employment of cocain and the suprarenal preparations in the vocalist's larynx. And speaking of cocain, I invariably caution these patients against resorting to any of those worse than useless medical beverages, such as Vin Mariani and similar stuff. So far from being in any sense genuine tonics, they are, in reality, nothing but goading spurs to a group of already jaded nerves and muscles, and if they be used in any quantity they are certain to increase the vascular relaxation and engorgement that we are endeavoring to overcome. It is because of this catarrhal hyperemia and the mild degree of tissue infiltration associated with it that I am apt to defer until late in the treatment, if indeed I resort to them at all, the use of electricity and strychnin. Although these remedies may be of some moderate value in promoting restoration of function after the catarrhal process has been arrested, yet if they are employed before this has been accomplished I think that their effect is to delay rather than to hasten its subsidence.

I fear that what I have to say concerning the local treatment of these cases will be considered rather com-

monplace and perhaps disappointing, for I say frankly that I have discovered nothing of magical curative power either in the form of a single remedy or of any combination of remedies. It stands to reason that the slowly developed vocal fag such as we encounter in the overtaxed chorus-girl is not to be quickly overcome by any medical *coup de théâtre*. It is on the simple astringents that we must depend to check the progress of the catarrh and to remove its effects, and while I have no doubt that in judicious hands a number of these may prove efficient, yet of all those that I have tested I give my preference to such very simple ones as alum and chlorid of zinc, the alum in an atomized 2 or 3 per cent. solution, the zinc in a 1 or 2 per cent. solution, used either as a spray or on the applicator. I suppose that there are plenty of atomizers that will answer the purpose more or less well, but to me the Burgess with its long smooth tip and its finely divided spray has proved the most satisfactory. It enables me to medicate the larynx most thoroughly and with the least provocation to glottic spasm and cough. The removal of any catarrhal or other pathologic condition of the nose, pharynx or mouth is so obviously essential to the successful treatment of the larynx that I mention it only to prevent any suspicion that I am not fully conscious of its importance. And in view of the daily and nightly strain to which the chorus-girl's throat is subjected, the more frequently this strain receives an antidote by treatment the more rapid and continuous will be her progress toward cure. Let me say a final word about the use and abuse of the lozenge. The very frequent abuse of this convenient and often valuable form of medication is largely due to the fact that the selection of the lozenge is so commonly left to the judgment of the series of apothecaries' clerks whom the girl consults during her travels. In the course of a season's tour her throat and stomach are apt to be harassed by a number and variety of therapeutic absurdities in lozenge form that would permanently disable those of anything but a human being. It is nothing less than appalling to read the formulas of some of these pastilles and troches and lozenges that are made and exploited by the manufacturing chemists. Probably most of them contain opium in some of its forms, codein, cocain, lactucarium or hyoscyamus, and many of them are made up with a base of sweetened gum or a fruit paste that in any quantity is almost certain to provoke more or less gastric disturbance. Without dwelling on the equally silly and objectionable features of these grotesque combinations, I would only suggest that simplicity is just as desirable here as in our direct treatment of the larynx.

In conclusion I venture to say that much of what I have said of the chorus-girl and her vocal troubles may be fittingly applied to thousands of clamorous amateur vocalists who are as grievously ignorant of the art of singing as is the chorus-girl. They are daily inflicting irreparable injury on their throats by sacrificing tone beauty to volume, and faultless technic to extent of compass. The same fundamental principles of preventive management and curative treatment are applicable to all types of laryngeal catarrh due to imperfect tone production. The chorus-girl represents but one of them, and the only hope for her vocal salvation will depend on her saving as much as she can of her scanty wages and embracing every opportunity for study under competent masters.

1435 Spruce Street.

THE THERAPEUTIC USE OF CITRIC ACID AND THE CITRATES*

HENRY BIXBY HEMENWAY, A.M., M.D.
EVANSTON, ILL.

Some five or six years ago, in a paper on the opsonins, Professor, now Sir Alfred Wright incidentally mentioned that in a case of "brawny swelling" he had used successfully 60 gr. of citric acid administered every two or three hours. Under the old conditions as to therapeutic knowledge such a case gave one a feeling of helplessness and a loss of confidence in the science of medicine. I had previously lost a patient whose case was typical. Beginning as a mild infection in the mouth, showing practically no objective symptoms, it rapidly intensified. No antiseptics, no constitutional remedy which was suggested seemed to have the slightest beneficial effect. The swelling increased in geometrical ratio. The lip, cheek and then the neck were involved. To relieve the tension, before the neck was specially involved, deep incisions were made externally and internally into the cheek and lip. The only result was the exudation of a colloid substance resembling the gum on a cherry-tree. Within three days after the first objective symptoms, the strong man, in his prime as to age, had ceased to breathe.

The condition may be likened to a bargain-sale, to which the leukocytes rush in such number that half of them cannot get near the table. Those which manage to capture microbic victims cannot find a quiet corner in which to eat their lunch. Professor Wright explained that the citric acid, by reducing the viscosity of the blood, assisted the circulation, bringing fresh leukocytes to the fray, and helping the gorged cells out of the way. His patient recovered promptly.

Some time after reading the above-mentioned article, I was called to see a woman in the ninth month of pregnancy. Her face was so edematous that she could with difficulty open her eyes to see. The urine contained nearly 95 per cent. of albumin. A month previously there had been no albuminuria, but a mitral regurgitant murmur was noted. Eclampsia was confidently predicted, and there seemed slight hope for the patient. Remembering a former case in which, after phlebotomy, only a few drops of tarry blood could be obtained, and comparing the condition with that in Wright's patient, citric acid was prescribed with the sodium phosphate solution. The edema rapidly disappeared, and the urine became more free. The amount of albumin in the urine was reduced to about 5 per cent. before the confinement, which was normal in every regard. After confinement, the condition of the mother became better than it had been for years, and the mitral bruit could not be found. The child, though poorly nourished for some time, finally became strong and healthy.

Dr. E. J. Ford, of Evanston, had a case of edema of the pharynx which had developed rapidly. He feared death in a few hours. The citric acid treatment was tried. The patient began to improve immediately, and within a few days was entirely recovered.

Lemonade, the citric fruits and the citrate salts, either alone or in combination, had long been used empirically in a variety of conditions with most excellent results. The action was explained as due to diaphoresis and diuresis. Often credit was given to the basic element of a salt, lithium, for example, which rightly belonged to

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the acid radicle. Recent chemical investigations have rendered the study of the action of this acid still more interesting. It illustrates what may be expected from more searching investigations as to the action of other chemical remedial agents.

Viscosity of the blood is due to its colloid constituents. When the viscosity is increased the velocity of the blood-current will be reduced, unless the force behind it is increased. It takes four pipes with a diameter of 1 inch to equal the capacity of one of 2-inch diameter. Since the circumferential friction is increased inversely with the diminution in the squares of the diameter of the vessels, it is easy to see that the smaller the vessels the greater will be the retarding effect of viscosity on the velocity of the blood-current. This effect is noted especially in the capillaries, through which all of the blood of the body must pass. We might even get complete capillary stasis. Without any added factor, under these conditions the heart must work harder to keep the blood in motion, and the strain will be intensified on the cardiac valves. If the valves are weak, we may expect a regurgitant bruit, as in the eclamptic patient mentioned. With greater force applied by the heart, the walls of the arteries must be strengthened, and thus, in a slowly developing case, we may get arteriosclerosis. In the place of whipping the horse, lighten his load. In the place of using heart stimulants in such a case, if we decrease the viscosity of the blood, will not the results be far more satisfactory? Sometimes the load has been lightened temporarily in these cases by administering the nitrites, thus dilating the capillaries. Such action must at the best be simply palliative, and it does not strike at the root of the difficulty.

Viscosity is distinct from coagulability. While they may be coincident, they are independent characters. The viscosity may be low, and the coagulability high; and vice versa. Still, the retarded current favors the production of thrombosis. Thus, in thrombotic apoplexy I have obtained most excellent results by the early reduction in the viscosity of the blood.

Given obstruction to the circulation through the capillaries, with heart-power normal or above, the tendency is to force the more fluid portion of the blood into the tissues, or to produce rupture of the weaker vessels. Thus we have edema, or minute hemorrhages. We may have serous organization of the serum in the tissues, as in parenchymatous nephritis. Apparently, local conditions may increase the viscosity in certain portions of the body, above the general degree for the entire system. The effusion into the tissues increases the intercellular tension, and we may thus have a reabsorption of the more watery portion by the veins and lymphatics, leaving the organized elements of the blood behind. In this way the final result will be a lowering of the viscosity on the arterial side, with decreased intravascular tension, and anemia. I have seen, under the use of the citric acid, or its salts, lips that were almost colorless become a bright scarlet color, and colorless cheeks show the glow of returned circulation. This condition has even been mistaken for a hectic flush.

With increased obstruction to the capillary circulation, and that in the arterioles, as before remarked, the heart attempts to overcome the difficulty by increased force, either in the individual beat, or by increased frequency. Digitalis is not so much indicated as the reduction in the obstruction. If the walls of the blood-vessels are not sufficiently strong, the increased heart action will dilate the proximal arteries. This increase in the size of the thoracic vessels may seriously obstruct respiration. This difficulty in respiration was sometimes relieved by the empiric use of citrates and acetates. Now, with an appreciation of the part played by viscosity, one may better understand why these benefits were obtained, and in what class of cases the treatment is indicated.

We have thus briefly sketched the physics of the condition, showing the mechanical relationship of the symptoms. The laws of physics are universal, as are those of chemistry. That mysterious power known as life uses these universal laws, and it is not impossible that all of the phenomena of life may be finally explained by a better knowledge of the two branches of science—physics and chemistry.

We owe much of our knowledge of colloids to the Glasgow chemist, Thomas Graham. In 1861, while still engaged as Master of the Mint, he published his "Liquid Diffusion Applied to Analysis." He proposed osmosis as a means for the separation of crystaloids from colloids, and suggested the terms "sols" and "gels" to characterize the physical character of the colloids. These terms are relative only, the sol being in solution, and the gel being more jellylike in composition. The gum of the cherry tree is never a true sol, as the molecules simply absorb water and thereby become swollen, but not dissolved. The molecules of cooked starch, or of glue, on the other hand, first swell forming viscid masses. With the addition of more water this viscosity is finally reduced to a minimum, as the molecules become so diffused as to become imperceptible except by the use of the ultramicroscope. The colloids of protoplasm are generally in the sol form.

It is found that whatever causes the sols of colloids to swell, thus increasing the size of the molecules, tends to increase the viscosity. Conversely, those agents which tend to convert sols into gels, tend to reduce the viscosity. Francis Hofmeister, of Strasburg, and others have found that one of the most efficient agents of the latter nature is citric acid. The reduction of the viscosity of the blood when this drug is used may therefore be directly traced to the action of the agents on the individual sols of the colloid content. But the beneficial action of the acid is not limited to the mechanical effect on the circulation.

For convenience of study, plant-cells furnish the basis of many of our conclusions as to the chemistry of life. We are justified, however, in presuming that probably the same relative changes are wrought in animal bodies.

All cells must depend on their powers of diosmosis and dialysis for their physiologic efficiency. It was formerly supposed that this power of diosmosis was dependent on the relative size of the molecules of the substance, as compared with the openings through the membranes. This is not strictly true. Benzin is soluble in ether, but not in water. Ether is soluble in both water and benzin. When the ether is separated from benzin by a simple membrane diosmosis readily takes place; but if the membrane is filled with water the benzin does not pass to the ether side. In other words, a substance cannot pass by osmosis through a medium in which it is insoluble. Quincke long ago suggested that the hyaloplasm, or outer layer of cytoplasm, consists of an oily film. More recently Gibbs and Overton have made further demonstrations to the effect that the hyaloplasm consists partially of an emulsion of oil; and in accord with the general law stated above as to diosmosis, only those substances which are soluble in oil may pass by osmosis through the cell walls. Overton for example

points out that the reason why chloroform acts so profoundly on the nervous tissue is that the nerve cells have hyaloplasm especially rich in oil. Chloroform is soluble in oil. So is alcohol. Citric acid or the citrates may favor exosmosis from the cells, by raising the specific gravity of the external media. If too much fluid is thus extracted from the cells, impairment of activity must result. To counteract this tendency for exosmosis the citrates (not the acid) tend to raise the specific gravity of the cell contents by dialysis.

Czapek, of Prague, has apparently shown that the hyaloplasm consists partially of a solution of colloid substances. In other words, we have the colloid solution intermixed with an oil emulsion. A sol has relatively no power of plasmolysis when in solution, but the gels of most colloids are anion in nature. They therefore attract the cation base of electrolytes. This action is favored by the precipitation of the sols of colloids. A citrate salt readily looses its basic element to the hyaloplasm because of the precipitating action of the acid, and the acid is left free to continue this precipitating action. Hoffmeister was the first to show that, owing to its catalytic nature, alkaline metal salts have a graduated effect on colloid solutions. This action is relatively graded in the following order, the first being the most efficient: citrate, tartrate, sulphate, acetate, chlorid, nitrate, chlorate. According to Overton the non-acid alcohols, aldehyds, ketones, esters of fatty acids and alkaloids produce least plasmolysis, passing readily into the cells. Salts of organic acids readily produce plasmolysis.

The salts of magnesium and the light metals show the faculty of precipitating the sols from an albumin solution, and then being redissolved. Such salts therefore readily yield the basic element to the hyaloplasm, and then the gel combination may be redissolved in the cytoplasm, ready for use in the cell. When the albumin is precipitated by salts of iron, copper, the other heavy metals, strontium or calcium, the reversal of the process — the redissolving of the precipitation — is relatively impossible. The union is permanent. This seems to explain why we used to see so many patients who were saturated with mercury taken years before, or who showed the typical blue color of silver, the result of drugs long since discarded. It may also point to an explanation of the action of lead, as found in many industrial diseases.

We see, therefore, that if we wish only the mechanical effect of the acid in the blood, for its effect on the circulation, it is better to use the acid plain; but if we desire the action of a base on the contents of the cell it should be used in combination with an organic acid, of which class the citrate is apparently the most active. We get increased action from the kidneys with the acid, probably by mechanical effect. With a salt we might expect a better physiologic effect.

No physician worthy of the name uses a set formula in his prescriptions. Each case demands individual treatment. Simply as indicating to some degree my individual methods and doses the following general suggestions are given.

In such a case as that mentioned of threatened eclampsia, the indications seemed to be immediate reduction in the viscosity of the blood, stimulation to bowel action, and diuresis. This is met by the following:

R. Acidi citrici 30
Liquoris sodii phosphatis com 80
Aquæ 40

Misce. Sig. Take a teaspoonful in a full glass of water every three hours. (Later, twenty minutes before each meal and at bed time. This mechanically washes out the stomach before the meal, and prepares it for digestion.)

If there is a rheumatic or gouty condition present, so that it is necessary to use the salicylates, the pure acid may not be used, but a citrate should be substituted. Thus:

R. Sodii citratis 30
Sodii salicylatis 20
Aquæ 120

Misce, et Sig. Take a teaspoonful in cup of hot water half an hour before each meal and at bed time.

(Such a prescription is useful even before the painful symptoms develop, in cases in which there is gastric and intestinal fermentation. If the intestinal fermentation is more marked than that in the stomach a portion of the salicylates may be given in the form of phenol salicylate, and because of its insolubility, the drugs might better be given in capsule, with directions to drink water freely afterward.)

When we desire only, or chiefly, the action on the blood the acid may be given thus:

R. Acidi citrici 60
(Strong. For milder case 10.)
Aquæ 120

Misc. et Sig. Take a teaspoonful in glass of sweetened water three times a day.

If the stomach objects to the acid, or if the prescription is for an infant, a portion, or all of the acid may be given in the form of sodium or potassium citrate.

In cases of anemia, in which we wish to increase the amount of iron in the red blood corpuscles, the following is suggested:

R. Acidi citrici 15
Ferri citratis solubilis 4
Aquæ 120

Misce, et Sig. Take a teaspoonful with water before each meal and at bed time.

The doses above indicated are all for adults. Experience shows that patients who at first object to doses of 10 cg., later take many times that amount without ill effects. In catarrhal conditions of the stomach, with large quantities of viscid mucus, the citric acid frequently gives quick relief, and digestion is improved. It is my experience that these cases are generally complicated with amylaceous dyspepsia, and the carbohydrates must be withheld from the dietary. In acute gastritis, the sodium, or potassium citrate, is generally to be preferred to the acid, and large quantities of water should be given. In acute gastritis the mucous membrane of the stomach is abnormally dry, and the acid tends to extract from the cells the little water which they contain, intensifying the evils of the disease.

Animal therapy has the very decided disadvantages of great cost, and danger of deterioration, or of unexpected mixture. With our present methods the danger of tetanus from the use of vaccine virus, or serums, is reduced apparently to the lowest possible minimum. Still that danger exists. Then, too, there is the further danger of anaphylaxis. It is possible that these disadvantages may be still further reduced. By way of contrast, chemical substances are generally far more stable, and the cost is therefore less. Though it takes time to produce an individual bacterin solution, chemical medicaments may be quickly obtained in any community. Is it not possible that relatively too little time has been devoted to the exact action of common drugs? Our books on materia medica have been concerned only

with the gross results observed. They have not gone to the root of the matter, thus to explain why we sometimes get one action from a drug, and sometimes another. With all our boasted science, are we not to-day still adhering too closely to the bonds of empiricism? Feeling this to be true, and because of my own lack of information, I have endeavored to open the shutters that others may see more clearly that which is as yet dimly perceived.

INFANTILE ECZEMA*

C. A. SIMPSON, M.D.

WASHINGTON, D. C.

A disease of such varied forms, causes and remedies as eczema naturally can be fully described only in a lengthy paper, and it is my desire therefore to mention only briefly the chief causes, and to pay more attention to the therapeutics of this common disease, from which probably the majority of infants suffer in one form or another. In many instances the disease emanates from a single isolated spot and spreads over large tracts of the body, thus making rapid cure a matter of some difficulty. The inquiry often made by relatives, as to whether it is not the doctor's drug which first brought out the rash, is frequently difficult to answer when one knows the powerful irritant actions some ordinary mild drugs have on an eczematous skin. Unfortunately, no two authorities have a uniform mode of treatment, and it is therefore not remarkable that the treatment recommended by one authority is looked on by another medical man as being faulty.

As to the etiology of eczema in children, it has rightly become the endeavor of the school of dermatology to keep pace with the giant strides made in late years by the science of bacteriology, and investigation on these lines has not failed to leave its imprint on the inquiry as to the origin of eczema. In opposition to the view, chiefly supported by Hebra, that local irritation is the principal factor concerned in the production of this disease, forces have not been lacking to emphasize the importance of the parasitic theory. It is, indeed, true that in the height of the inflammatory process, during the moist stage, staphylococci are found in the secretion and it is also possible that by some trifling traumatism the penetration of staphylococci into the lymph spaces of the cutis is allowed, and that there, owing to disintegration of the bacterial body, toxins are set free. Since these toxins are known to differ in their nature, it is conceivable that various pathologic phenomena may be produced by them. Some of these pathologic conditions are now classified as infectious eczematous dermatosis.

Beckhert was one of the first to show that by experimental inoculation of staphylococci lesions indistinguishable from eczema could be produced, and this seemed to correspond with the fact that the child's skin is particularly susceptible to traumatism of a trifling sort, especially from the too frequent use of strong soaps and water. It is true that many children with more resistant skin are able to bear bathing morning and night; but on others whose skin is more delicate the too frequent use of these irritants is responsible for a catarrhal condition of the skin, in other words, eczema. Sabouraud was the first to use the names "acute" and "chronic staphylococcus epidermatosis," after their supposed etiologic factors, while later writers, as Engman, Fordyce and others have gone further, pointing out the fact that these patients show an increased susceptibility to eczema after the beginning of an attack, or when it becomes more marked. They cite the lower resistance occurring after poisoning by exposure to poison ivy, and the cases of eczema on the hands of doctors and nurses, caused by such irritants as formaldehyd.

This increased susceptibility may, perhaps, be explained by an analysis of Bruck's experiments on guinea-pigs. He had a patient who had been poisoned by eating pork and who, since then, was unable to eat it without getting an attack of urticaria. Using six guinea-pigs, four for controls, Bruck sensitized two with the serum taken from the patient during an attack of urticaria, and twenty-four hours later gave intraperitoneal injections of hog-serum. Both of the animals showed typical signs of anaphylaxis, dying in eighty minutes; the four control animals remained perfectly well. The experiment demonstrated a hypersensibility in the patient which could be transferred to the guinea-pig, and also a specific anaphylaxis in the pig against hog-serum. This lends support to the hypothesis that such conditions occur in man, explaining many of the easily acquired recurrent attacks of eczema as really due to a hypersusceptibility produced, no doubt, by the presence of some sensitizing substance in the blood, due either to bacterial irritation from without, or, as in Bruck's case, by food products from within. The question must be raised as to whether the food plays any part in the production of eczema. From the earliest time eczemas supposed to come under this category have been termed "milk scab." I must confess that I have never been able to satisfy myself that milk of a particular kind has any influence on the production of eczema, as this disease occurs in children irrespective of whether they are nursed naturally or artificially. If, however, coarse pathologic changes exist in the digestive apparatus, the milk given may play the rôle of heterogeneous proteid and may thus produce changes of a toxic nature in the skin. This may of course happen in breast-fed children as well as in those reared artificially, or in both cases if proteid is not assimilated. Change in the diet is indicated in some cases by overnourishment, in others by undernourishment, and again in others by irregularities in nourishment. As a general rule, however, in the treatment of eczema in children, providing the child is thriving on its diet, I allow it to continue without changes. Before doing anything else, I usually forbid baths of every kind. Time after time I have observed that baths of starch, oatmeal, boric acid and other substances have exerted directly harmful effects, and even an ordinary cleansing bath, used too early, may delay cure or bring about a relapse. To obtain a complete cure of eczema, therefore, I require that the patient shall be neither washed nor bathed. In acute cases the purpose of the treatment must be to allay weeping from the affected parts as quickly as possible. To this end we may apply either the astringent fomentations or drying-up powder. In the former method both resorcin and acetate of aluminum are especially to be recommended; in one case resorcin acting well, in another, apparently identical, case better results being obtained with official solution of aluminum acetate. I dissolve 10 gm. of resorcin in one-half liter of water and use the fluid for a continuous series of fomentations; of the solution of aluminum acetate I give two tablespoonfuls in 250 c.c. water. If the desired effect is not produced

* From the Dermatological Clinic, George Washington University Hospital.

in a few days, the treatment is changed, powder being substituted. The best form is rice-powder, with which the affected parts are well powdered several times a day until, after the lapse of some days, we are successful in allaying the weeping and bringing the eczema into the dry stage. The skin, now being in a state of some tension, requires inunction with an indifferent ointment. Here it is again largely a question of experience, since it cannot be foretold with certainty which ointment will act best in a given case. In one case a serviceable application will be a 3 to 5 per cent. solution of boric petrolatum. In other cases good results may be produced with Kaposi's unguentum vaselin plumbicum. This preparation is made by the addition of petrolatum in equal quantity to Unguentum Diachylon-Hebra. Hebra Diachylon Ointment is made according to the following prescription:

R	Gm.		
Plumbi oxidi	90		ʒiii
Olei olivæ	450	or	ʒxv
Olei lavandulæ	8		ʒii

Aquæ q. s. to make a rather stiff ointment.

In spite of initial benefit, however, we often see relapses, the diseased parts again returning to the weeping stage. We may then make use of Lassar's paste, which contains fat and powder in equal proportions so that its action is both drying and emollient. In acute eczema we may use a zinc paste composed of zinc oxid, 6 drams, starch, 2 drams, petrolatum album, 1½ ounces. This must be applied, about the thickness of a knife-blade, two or three times a day and covered with gauze. Every third day it is necessary to remove the ointment with olive oil, in order to decide whether or not the treatment shall be continued. As soon as absolute dryness is established and hyperemia begins to be less pronounced, we may proceed to the more comfortable employment of the lotion introduced by Jadassohn, composed of zinc oxid and starch, each 5 drams; glycerin 3½ drams; distilled water 3 ounces. This fluid should be well shaken and applied to the whole of the affected part by means of a large brush several times a day; it dries by itself in a few minutes and further dressing is unnecessary. It is easy to imagine how comfortable such a form of treatment may be, both for the child and the nurse. Instead of this the lead-water liniment of Boeck is sometimes to be preferred, as pulverized talcum and starch, each 5 drams; glycerin, 2 drams; lead-water, 3 ounces. This is to be used in the same way as the above-mentioned lotion.

In many cases, however, no progress is made with any of these prescriptions. The child is tormented with itching, which continues both day and night. In order to allay this, tar is the remedy which stands at our disposal, though it should always be borne in mind that the early use of tar is a two-edged sword, and that often enough recurrence of weeping follows on apparent improvement. I therefore advise that the transition to tar should be made only when absolute dryness is established, and when hyperemia is no longer a prominent feature. A less irritant action is possessed by liquor carbonis detergens, which should be used while the skin is still in a state of tension, in the form of an ointment, mild at first but stronger afterward, as liquor carbonis detergens, 2 drams, and rosewater ointment, 3 ounces. Should the skin remain quite dry, and thus be able to bear more powerful medication, we may proceed to a tar solution, such as liquor carbonis detergens 2 drams, zinc oxid 5 drams, glycerin 7 drams, distilled water 3 ounces. The convenience of this method renders tar in this form almost indispensable in eczema of children. It must be said, however, that pathologic processes are encountered in practice in which all the measures above-mentioned do not suffice and in which the itching continues in spite of treatment. We are then obliged to proceed to the use of stronger preparations of tar and phenol (carbolic acid) such as oil of cade (oleum cadinium), birch tar (oleum rusci) or beechnut oil (oleum fagi). The greatest caution must here be exercised, as too drastic a preparation may place in jeopardy results already achieved with the greatest trouble, and we should therefore begin with a very weak dose incorporated in a paste and gradually increasing as time goes on, such as phenol ½ dram; oil of cade 1½ drams; zinc oxid 6 drams; starch 6 drams; petrolatum album 2½ ounces. As a rule the desired result is obtained with this application and it only seldom happens, and then chiefly in cases in which the disease has assumed a chronic form, that it is necessary to resort to the use of pure tar. Should this be necessary, however, the diseased parts should be painted with pure oil of cade, and the child should afterward be placed for ten minutes in a lukewarm bath, and after drying anointed with boric acid petrolatum, finishing with powder. On account of its antipruritic and keratoplastic properties tar has become so indispensable that one often wishes that there were more preparations of this substance at our disposal. It cannot be denied that some individuals show a certain intolerance to a particular tar preparation, while they may tolerate another perfectly well. In many cases I employ a preparation called anthrasol, a fluid tar from which the coloring matter has been removed; it forms a light yellow oily liquid with a faint odor of ordinary tar, and is insoluble in water, but forms a solution in all proportions of alcohol, acetone, or olive oil. Anthrasol is very little poisonous even when used on large tracts of skin; in my experience it has given rise to no toxic effects. A special feature is that irritant effects on the kidney have never been observed. I employ it in the following formula: anthrasol, 25 drops; lanolin, 2½ ounces; starch and zinc oxid, each 5 drams. Lenigallol, the triacetate of pyrogallic acid, is also well in place in the treatment of the subacute stage of eczema; it reduces hyperemia and exudative infiltration. It is sometimes to be recommended combined with anthrasol, as follows: anthrasol and lenigallol, each 25 drops; Lassar's paste, 1½ ounces. The general treatment here briefly sketched requires modifications or additions on certain parts of the body in each individual case, this being particularly true in cases of eczema of the scalp. Paste should never be employed on the scalp, owing to the difficulty with which the powder is afterward removed from the hair.

Attention should also be drawn to the sulphur preparations, especially when the eczema is dependent on a seborrheic element. Thiol is often capable of producing surprisingly good effects in this disease; one of its best properties consists in the alleviation it affords to burning and itching, which it will sometimes entirely abolish from the first moment of application; hyperemia and swelling also speedily disappear. Thiol is antiseptic, desiccating and keratoplastic; it is in no way irritant to tender skin, but is rather sedative. It may be used in various convenient ways, such as the following: as for painting: thiol liquid, 7 drams; glycerin, 2 drams; distilled water, 2½ ounces; or as a powder for dusting: thiol dry, 25 grains; starch, 10 drams; or as an ointment it can be combined with thiol liquid, 2½ drams; petro-

latum, 5 drams; lanolin, 15 and 17 drams. Finally, in obstinate cases, one is sometimes obliged to resort to internal medication. Often the administration of arsenic is good, especially if the eczema is of an infiltrated, chronic thickened type. I generally administer it by the formula suggested by Neuberger, as Fowler's solution, 15 drops, and distilled water, 1 dram. For an infant of 6 months, 1 drop is to be taken daily for fourteen days; this is increased each week until a dose of 5 or 6 drops is reached. For older children a correspondingly larger dose is to be employed.

One would imagine that the only scientific means of combating eczema, in the face of the bacteriologic and pathologic findings, would be by vaccines; but this form of treatment, especially in children, has been successfully carried out only by a few investigators, the majority of whom agree that in acute and subacute vesicular eczemas vaccines are of no avail. Where the disease has been associated with crust and pus formation vaccines have been able to eradicate the suppurating condition without markedly influencing the underlying catarrhal process. Gilchrist apparently gets good results with seborrheic eczema. In long-standing cases of simple sycosis and chronic furunculosis of the nape of the neck, just the lesions in which brilliant results would be expected with vaccines, Engman, of St. Louis, and Towle, of Boston, failed to obtain cures.

Apparently the stock vaccines of *Staphylococcus albus* in most cases give quite as good results as autogenous vaccines; they should be given in small continuous doses, the interval and dose being controlled by clinical symptoms alone. This by no means should constitute the sole treatment, but instead is to be combined with the lotions and suitable ointments previously mentioned. At the same time the attempt should be made to find and eradicate the underlying cause, whether it be gastro-intestinal troubles, napkin dermatitis, ear or nasal discharges, scabies or pediculosis. These conditions, when mild, and many other troubles found in infants often lead to violent scratching and subsequent infection with *Staphylococcus albus*, which is always present on epithelial surfaces. It is in these secondarily infected cases that vaccines sometimes eliminate the pus element, so that we have a simple catarrhal condition to deal with instead of a complicated infected one.

1217 Connecticut Avenue, N. W.

CHRONIC CONSTIPATION

ALFRED C. REED, M.D.
Assistant Surgeon, U. S. P. H. and M.-H. S.
TOMPKINSVILLE, N. Y.

While it is generally recognized that the use of cathartics tends to aggravate chronic constipation, it is none the less true that all too often mercurials and the vegetable purgatives are made the first resort in this condition. In part at least, this is because of carelessness in ascertaining the cause and a more or less confused idea of the rational basis for treatment. Chronic constipation may accompany or be a symptom of some general organic or functional morbid process, or it may exist as an independent affection. Inability of the bowel to empty itself depends of course on a disturbance of some part of the mechanism involved in defecation. The essential physiology of the impulse to defecation and the factors on which it depends are but imperfectly understood. A certain rhythmical periodicity as well as a fairly definite acceleration by taking food into the stomach are somewhat characteristic.

A peculiar form of constipation is that due to spasmodic contraction of entire sections of the intestine at once, without the recurring relaxation-rings which characterize normal peristalsis, and with no forward movement of the contents. This is seen, for instance, in lead-poisoning, and independently in neurasthenic and melancholic individuals. The intestinal spasticity is indicated by the configuration of the feces, which are hard and of small diameter. The real cause of this cramp is not known, except in the case of lead-poisoning, but the condition is amenable to symptomatic treatment.

No better antispasmodic is available for the relief of this condition than belladonna. It may be administered by mouth combined with a carminative in some such prescription as the following:

℞ Tr. belladonnæ fol. ..... aā 5
Fl. ext. rhamni purshianæ 4
Tr. zingiberis ..... ad 60
Tr. cardamom. comp., q. s. .....
Misce et fiat solutio.
Sig.: 1 teaspoonful after each meal.

Another measure which often meets with success is the use of oil enemas. Two methods may be suggested. By means of a smooth glass cannula, a rubber tube, and a funnel, from 350 c.c. to 500 c.c. of pure olive oil are very slowly introduced into the rectum, the patient keeping the dorsal position with the hips elevated. The operation should consume ten minutes or more. Again, 60 c.c. of olive oil may be injected into the rectum by means of a large irrigating syringe, just before retiring, and be retained by the patient. This should be repeated for five or six days.

Chronic habitual constipation can be reduced to two general types. In the first, the irritability or motile ability of the intestinal wall is decreased or in abeyance. In the second, the normal stimulus to defecation is lacking.

1. Loss of all or part of the normal irritability of the intestine may be due to an abnormality in the mucosa, musculature or nervous mechanism (local or central). Constipation due to a lesion of the mucosa is illustrated in chronic intestinal catarrh and in atrophy of the mucosa of the large intestine. As Nothnagel[1] points out, constipation is often present in such cases, and a decreased arousability of the mucosa is most probably the reason. It is also evident that no stimulus will be effective if there is atrophy of the muscular coat of the colon, and Nothnagel, who has contributed largely to our knowledge of this subject, says that while muscular atrophy is at times associated with mucosal atrophy, it may also exist as an independent affection, with no demonstrable lesions of the mucosa. Of no less importance is paralysis of the muscular coat as seen in inflammatory conditions affecting the peritoneum. Peritoneal inflammations can involve the intestinal muscle even to the point of complete paralysis. The relation between the two is obscure and deserves more study.

In cases of muscular insufficiency not associated with acute inflammatory processes, stimulating and tonic treatment is indicated. Nux vomica, quinin and general tonic measures may be employed.

Disorders of motility referable to the local nervous system (ganglion cells and their branches, in the intestinal wall) are most difficult to determine. Degeneration of these ganglion cells has been observed in cases of lead-

1. Nothnagel: Ztschr. f. klin. Med., iv, 422.

poisoning, and in chronic constipation, and have been described as the cause of the disturbed motility, but similar degenerations are found in many other diseases, and anatomic anomalies of ganglion cells are notoriously difficult to assign certainly as the source of functional disturbances. That the central nervous system exerts a powerful influence over intestinal motility is clearly shown by the frequency of chronic constipation in psychic disorders, such as melancholia and neurasthenia, as well as in many diseases of the brain and cord. The real nature of this nervous control in life is unknown, and Krehl[2] well says that influences are operative in the motile function of the intestine of which we as yet know very little.

Here the physician can hope for success only by measures designed to relieve the underlying nervous or psychic disorder. Regular habits, especially as to meals, sleep and recreation, combined with a carefully outlined dietary and judicious use of baths, must be supplemented by such suggestive treatment as the physician can bring to bear. Suggestion, of course, depends on confidence of the patient in the physician and care not to arouse antagonism.

It is recognized that the decreased normal stimulation of the intestine is to a great degree due to an over-concentrated food-supply, and a diet lacking in those elements which normally exert a mild irritant action on the intestinal tract, increasing peristalsis and aiding evacuation of the bowels. Such elements are found in the more indigestible parts of the food, the cellulose and the refuse which traverses the intestine unaltered. Correction of diet, with a judicious and minimal employment of laxatives, and supplemented by physical measures for improving abdominal circulation and bodily habits, is the acceptable line of treatment for such cases.

Foremost among physical measures should be reckoned regularity in going to the water-closet, exercise which will stimulate and develop the abdominal muscles, massage, copious water-drinking, and a diet which contains abundant cellulose and waste. Such a diet may well include coarse, fibrous vegetables like spinach, carrots, cabbage, cauliflower, lettuce, corn, beets and turnips. Fresh fruits are also advisable.

A. Schmidt[3] advances the view that especially in atonic cases, the explanation just given does not tell the whole story, but must be at least qualified by the addition that in cases of chronic habitual constipation the food is over-digested as compared with normal conditions, and that as a result the feces are insufficient in amount, and too hard in consistency. He regards this abnormality of digestion as the primary cause, and disordered motility as secondary, and concludes that the deficient quantity of undigested food residue is responsible for a much-decreased development of bacteria, and the correspondingly low proportion of bacterial decomposition products such as volatile and higher fatty acids and gases, is insufficient to induce peristalsis. In the cases under his observation he noted a very small proportion of water in the feces, together with an extremely low percentage of dry material, and microscopically very scanty traces of food. Strassbourger[4] confirmed these results and in addition found that the proportion of bacteria in the feces of chronically constipated persons averaged about two-thirds that in the feces of normal individuals. Lohrisch[5] determined that the tender cellulose of fresh vegetables was more thoroughly digested in the intestinal canal of constipated than of normal individuals. Also the freshly evacuated constipated stools show neither fermentation nor putrefaction by the incubation test. These facts explain why so often an addition to the dietary of salads, fruits and coarse vegetables, does not relieve the chronic constipation, the cellulose being more completely digested in the constipated than in the normal intestine.

It is evident then, Schmidt continues, that a material less digestible than cellulose is required, and after experimenting with a great variety of substances, he concludes that the most satisfactory for this purpose is agar-agar, so familiar in the bacteriologic laboratory. Agar-agar has high hygroscopic properties, is non-irritant and absolutely insoluble and unabsorbable. It yields its moisture with great difficulty and is very resistant to decomposition. When administered dry, cut in scale form or small lumps, as a part of the food at each meal, it swells somewhat in the mouth, still more in the stomach, and emerges unchanged in the feces which are softer and usually evacuated more quickly. Agar can be best given in the scale form, a teaspoonful or more with each meal. It is tasteless and readily eaten with a breakfast food or a vegetable.

A careful routine examination of the feces in patients with intestinal disorders would go far toward elucidating obscure cases as well as facilitating an accurate diagnosis and establishing a rational basis for therapy. This routine examination need not be the disagreeable ordeal so many dread, and the additional light thrown on digestive disorders, anemias, unsuspected infection with intestinal parasites, etc., would amply repay the time and labor expended.

2. Krehl: Pathologische Physiologie, Ed. 6, p. 397.
3. Schmidt, A.: München. med. Wchnschr., 1905, xli.
4. Strassbourger: Ztschr. f. klin. Med., xlvi, 413.
5. Lohrisch: Deutsch. Arch. f. klin. Med., lxxix, 383.

THE STUDY OF TROPICAL DISEASES IN THE PHILIPPINE ISLANDS

A SUMMARY OF THE WORK PERFORMED DURING THE LAST TWO YEARS BY THE UNITED STATES ARMY BOARD *

WESTON P. CHAMBERLAIN, M.D.

Major, Medical Corps, United States Army; President of the United States Army Board for the Study of Tropical Diseases

MANILA, P. I.

Scientific study of the various problems presented in the Philippines was begun by medical officers of the Army shortly after the American occupation of the Archipelago. Reports of various laboratory investigations bearing on tropical diseases were made by many officers of the medical department, notably Drs. Strong, Calvert, Musgrave, Curry, Craig, Jackson and Vedder. Early in 1906, the United States Army Board for the Study of Tropical Diseases as they Exist in the Philippine Islands was organized by orders from the war department and has been in continuous existence ever since. The following medical officers have been detailed on this board in the order named: Major P. M. Ashburn, Captain C. F. Craig, Captain H. J. Nichols, Captain J. M. Phalen, Captain E. D. Kilbourne, Major W. P. Chamberlain, Major H. D. Bloombergh, Captain E. B. Vedder and Captain John R. Barber. I have served as president of the board for the last two years (1910 and 1911), and the following paragraphs deal with the work which has been reported on during that period. As this represents only a part of the scientific work which is

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being done by the Army Medical Corps, it is apparent that much opportunity for original research is offered to those who enter the military service.

An Experiment with Orange-Red Underwear.—This experiment lasted one year and was carried out on 900 soldiers, one-half of whom were clothed as usual, while the other half wore shirts, drawers and hat-linings dyed orange-red, with a view to excluding the actinic rays of the solar spectrum. The pulse, respiration, temperature, blood-pressure and weight of these men were recorded quarterly, elaborate blood-examinations and extensive photographic experiments were made, and the comparative sick-records of the two groups were carefully analyzed. No difference could be detected between the two bodies of soldiers and the conclusion was reached that no benefit resulted from the use of garments which exclude the actinic rays of the tropical sunlight.[1]

The Influence of the Philippine Climate on Blonds and Brunettes.—The investigations on this subject were carried out during a period of about two years, more than 1,500 men being under observation. One-half of these belonged to the blond type and the remainder to the brunette type. One thousand of these individuals had an average of two years of continuous tropical residence and the remainder an average of 5.5 years. The same kinds of observations were made as are referred to in the preceding paragraph, and in addition there were strength tests, examinations of stools and urine, determinations as to the condition of the men after exercise, and a study of the symptoms of which the men complained when exposed to the sun. The relative amount of invaliding home among the two complexion types in the Philippine forces was also investigated. It was concluded that the blonds were fully as able as the brunettes to withstand the influences of the Philippine climate as encountered by our soldiers at the present time. As a result of this study, and of the one regarding orange-red garments, the board is of the opinion that the main causes of tropical deterioration are infections, heat and humidity, and that the chemical action of the sunlight is probably not a factor in tropical morbidity.[2]

The Occurrence in the Philippines of Spirochetes and Fusiform Bacilli in Various Lesions.—For a couple of years the board has been on the lookout for the symbiotic organisms which were first described by Plaut and by Vincent. We have shown that in over 50 per cent. of the oral and faucial ulcers met with in the Philippines, spirochetes and fusiform bacilli are present in greater or less numbers, while in over 30 per cent. they are found in preponderating numbers. The same organisms are seen occasionally in ulcers of the skin and in pulmonary diseases in the Philippines. We are in doubt as to whether they are ever causative of any of the multiform lesions in which they are encountered.[3]

Typhoid Fever in the Philippines.—For two and one-half years the board has been making the agglutination and cultural examinations of all military patients in the Philippines who had typhoid or were suspected of having it. Many of these patients were Filipino soldiers. We also have made Widal tests on 591 healthy Filipinos, from widely separated localities, to determine what evidence there might be of a previous attack of typhoid among them. As a result of the laboratory work, the analysis of the case histories, and a study of the available statistics for the civil and military population, the board reached the following conclusions:

1. Typhoid is a widely scattered and common disease in the Philippines; its incidence in Manila is above the average rate for the United States and is exceeded by only a few of the worst American cities; the average admission rate among the American soldiers in the Philippines exceeds that for the troops serving in the United States; medical officers from many regions report its frequent occurrence among the Filipinos.

2. The statistics from the Filipino (native) scouts show a much lower typhoid rate than for white troops, possibly owing to failure to diagnose the atypical cases.

3. Widal reactions performed on the blood of 591 healthy Filipinos suggest a comparatively recent attack of typhoid in about 6 per cent. of adults, but do not indicate that the disease is prevalent in childhood.

4. Many epidemics have occurred among soldiers in the Philippines and three outbreaks among natives have been studied. Epidemics of great severity among the Filipinos are either rare or unnoticed.

5. The occurrence of the disease in the Philippine Islands is quite evenly distributed throughout the year. The incidence is least in the second quarter.

6. The appearance of the Widal reaction in typhoid fever in the Philippines is not as a rule delayed.

7. Paratyphoid organisms are occasionally isolated in the Philippines.

8. The leukocyte count in typhoid usually remains normal for whites and is slightly increased for natives. The differential count is normal for both races.

9. The mortality for white troops in the Philippine Islands during the last five years has been no higher than at home. It appears somewhat higher for Filipinos, but this may be due to failure to diagnose all the mild cases.

10. More than a third of the cases of enteric fever, whether among Americans or Filipinos, are entirely atypical and cannot be diagnosed without laboratory methods.

11. Over half of the cases occurring in the Philippine Islands can be diagnosed clinically and differ in no essential particular from typhoid fever as seen at home. This is true for both American and Filipino patients.

12. Much work still needs to be done among the natives to estimate the actual amount of mild and atypical typhoid which is occurring and to determine why extensive and destructive epidemics are not more often seen.[4]

Antityphoid Vaccine.—The preparation of antityphoid vaccine for the Philippine Division is carried out in the laboratory of the board, and during the last ten months 25,000 c.c. of this prophylactic have been made and issued to the various commands for administration by the post surgeons.

Experiments Undertaken to Test the Efficacy of the Ipecac Treatment of Dysentery.—So far as is known, the first attempt to determine the value of the ipecac treatment of dysentery by laboratory methods has been made by a member of this board.[5] In these experiments cultures of amebas from a human stool were treated with preparations of ipecac from various sources and in different dilutions. As a result it was determined that fluid-extract of ipecac was capable of killing amebas in dilutions of 1 to 10,000 up to 1 to 50,000, the amebacidal power depending on the particular extract used, and that emetin killed amebas in dilutions of 1 to 100,000. The commercial extracts of ipecac were further shown to

1. Phalen: An Experiment with Orange-Red Underwear, Philippine Jour. Sc., Sec. B, 1910, v, 6.

2. Chamberlain: Observations on the Influence of the Philippine Climate on White Men of the Blond and of the Brunette Type, Philippine Jour. Sc., Sec. B, 1911, vi, 6.

3. Chamberlain: Occurrence in the Philippines of Associated Spirochetes and Fusiform Bacilli in Ulcers of the Throat and Mouth, and of the Skin, and in Lesions of the Lungs, Philippine Jour. Sc., Sec. B, 1911, vi, 6. Bloombergh: Vincent's Angina, Bull. Manila Med. Soc., 1910, ii, 7.

4. Chamberlain: Typhoid Fever in the Philippine Islands, Philippine Jour. Sc., Sec. B, 1911, vi, 4.

5. Vedder: Preliminary Account of Some Experiments to Test the Efficacy of the Ipecac Treatment of Dysentery, Bull. Manila Med. Soc., 1911, iii, 3; also in Mil. Surg., 1911, xxix, 3.

vary considerably in total alkaloids, some being below the standard of the Pharmacopeia and some slightly above. The conclusion was reached that the ipecac treatment of dysentery should be given a more extended trial, that before treatment great care should be taken to be sure that the dysentery was caused by amebas, and that an ipecac should be used which is shown by actual analysis to contain the proper amount of emetin.

Effects of Ultraviolet Rays on Amebas.—In view of the recently reported successes in the use of ultraviolet radiations in the sterilization of drinking-water the board carried out a series of experiments to determine the effect of these rays on amebas.[6] It was found that the ultraviolet radiations would kill amebas, whether motile or encysted, as readily as they would kill *Bacillus typhosus* or *Bacillus dysenteriæ*. *Balantidia* were also readily killed. These results are of much practical importance in the sterilization of water-supplies in the tropics because sand-filters cannot be relied on to remove amebas.

Examinations of the Stools and Blood Among the Igorotes at Baguio.—The board made an examination of the stools and blood of 119 Benguet Igorotes, a wild race inhabiting the higher mountains in northern Luzon. The Igorotes are an industrious, well-developed and vigorous people living in a climate comparatively temperate. It was found that 92.5 per cent. showed the ova of one or more intestinal parasites in the stools. Twenty-nine per cent. were infested with uncinaria, but apparently did not suffer from the presence of these worms, the infections being in general light ones. Malarial organisms and filaria embryos were not found in any case. The blood showed the following average percentage of white cells: polymorphonuclears, 46.9; eosinophils, 8.9; small lymphocytes, 37.2; large lymphocytes and transitionals, 6.7; mast cells, 0.4.[7]

The Occurrence of Hookworm Infections Among American Soldiers in the Philippines.—Infestation with uncinaria is common among the Filipinos, but it was not to be expected that American soldiers, living in a sanitary manner, would often become the hosts of these parasites. An extensive series of stool examinations supported this view.[8] Out of 8,000 routine examinations of feces at the Division Hospital in Manila, only seventy-one showed ova of uncinaria. Out of 800 stools examined at Fort William McKinley, near Manila, only nineteen were found to contain the eggs. These figures show that hookworm infections, sufficiently well marked to be detected by the usual routine stool examination, are unusual among our white soldiers serving in the islands. Most of those in whose stools the ova were found had been admitted to hospital for causes other than uncinariasis. In the case of about one-third of the men who did show ova, there was good reason to suppose that the worms had been brought from the United States. The opportunities for infection there are ample since it has been found that 70 or 80 per cent. of the southern-bred recruits for the Army have some hookworm eggs in their feces.

A Study of Arneth's Nuclear Classification of the Neutrophils in Healthy Adult Males and the Influence thereon of Race, Complexion and Tropical Residence.—The board has recently completed a series of observations on the leukocytes in the tropics which indicate that the Arneth picture shows a marked shift to the left in Filipinos as compared with that of white men living in the same locality.[9] The conclusions reached were as follows:

1. Both Filipinos and Americans residing more than a year in the Philippines had a normal average number of white cells per cubic millimeter.

2. In both races the percentage of polymorphonuclear neutrophils was much decreased below the minimum considered normal for white men in temperate regions.

3. Probably the polymorphonuclear neutrophils are the only actively phagocytic cells in the circulating blood.

4. The average Arneth picture showed a marked shift to the left in the case of Filipinos and a slight drift in the same direction for Americans resident more than a year in the Philippines.

5. A shift to the left in the Arneth count probably indicates a diminution in the phagocytic power of the blood in question.

6. From the first five conclusions it will be apparent that the Filipinos show an actual absolute reduction in the number of polymorphonuclear neutrophils (phagocytes), and that of this reduced number an abnormally large proportion are deficient in phagocytic power. In other words, the Filipino has absolutely fewer efficient phagocytes than are found among white men either in the Philippines or at home.

7. This reduction in circulating phagocytic cells may be a visible indication of a lowered resistence to infections on the part of native races.

The Erythrocytes and Hemoglobin of Healthy Americans in the Philippines.—As a result of 1,400 red-cell counts and an equal number of hemoglobin estimations, made on 700 soldiers at two periods, separated by an interval of one year, the board found an average of 5,200,000 erythrocytes and 89.6 per cent. of hemoglobin for men who were living at sea level and had served on the average for twenty months in the Philippines. These results confirm the opinion of other observers that there is no such thing as "tropical anemia" due to climatic conditions *per se*. The pallor often seen in the tropics is probably due, in most cases, to superficial ischemia, and true anemia, when present, is generally caused by infections with parasites, notably uncinaria or plasmodia.[10]

Blood-Pressure in the Philippines.—It has been asserted by some observers that there is a decided falling off in the blood-pressure of persons residing in the tropics. The board has completed an extensive series of blood-pressure observations, comprising 5,368 readings on 992 healthy American soldiers and 552 observations on 386 healthy adult Filipino males.[11] For the age period of 15 to 30 years the systolic pressure, with a 12.5 c.c. armlet, averaged in both races from 115 to 116 mm. This is but little if at all below the average to be expected for the same age in the temperate zone, when a broad cuff is employed. Increasing length of tropical service did not alter the pressure. There was an average rise in tension with advancing age. The blood-pressure was slightly lower (2 or 3 mm.) during the hottest season of the year.

Wassermann Reaction in Syphilis, Leprosy and Yaws.—The board has done some work with the Wassermann

6. Chamberlain and Vedder: The Effect of Ultraviolet Rays on Amebas and the Use of These Radiations in the Sterilization of Water, Philippine Jour. Sc., Sec. B, 1911, vi, 5.

7. Chamberlain, Bloombergh and Kilbourne: Examinations of the Blood and Stools of Igorots at Baguio, P. I., Philippine Jour. Sc., Sec. B, 1910, v, 5.

8. Chamberlain: A Statistical Study of Uncinariasis Among White Men in the Philippines, Philippine Jour. Sc., Sec. B, 1910, v, 3.

9. Chamberlain and Vedder: A Study of Arneth's Nuclear Classification of the Neutrophils in Healthy Adult Males and the Influence Thereon of Race, Complexion and Tropical Service, Philippine Jour. Sc., Sec. B, 1911, vi, 5.

10. Chamberlain: The Red Corpuscles and Hemoglobin of Healthy Adult American Males Residing in the Philippines, Philippine Jour. Sc., Sec. B, 1911, vi, 6.

11. Chamberlain: A Study of the Systolic Blood-Pressure and Pulse-Rate of Healthy Adult Males in the Philippines, Philippine Jour. Sc., Sec. B, 1911, vi, 6.

reaction in a number of tropical diseases as well as in syphilis. The cases of yaws examined gave positive reactions. Of twenty-one lepers tested a positive reaction was obtained in only three instances. One of these three cases gave a clear history of syphilis and in the other two it was impossible to obtain a history, so antecedent yaws or syphilis could not be excluded.[12]

Diphtheria in the Philippines.—In the early days of the American occupation it was thought that diphtheria rarely if ever occurred in the Philippines. The laboratory experience of the board for the last two years and the health statistics for Manila have convinced us that the disease occurs by no means infrequently in the Philippines. Diphtheria is found among both whites and natives and the mortality statistics as well as laboratory experiments demonstrate the virulence of the organism. We believe the disease is much more common than the present statistics would indicate.[13]

The Eradication of Beriberi from the Philippine (Native) Scouts.—As a result of the recommendations of this board beriberi has been eliminated from the Philippine (native) scouts. The details of the earlier part of this work have been published previously under the above heading.[14] In that article it was shown that the disappearance of the disease was brought about by a reduction in the amount of rice consumed and the addition to the ration of a legume. Shortly after the disease had disappeared a change was made from highly milled (polished) rice to undermilled (unpolished) rice. We believe that this change alone would have eliminated beriberi, but owing to various circumstances, not under our control, it was impracticable to make this single alteration in the dietary. The thing which in our opinion is abundantly proved is that beriberi has been eradicated by a change in diet consisting of a reduction in the amount of rice from 20 to 16 ounces, a substitution of undermilled rice for the polished article, and the addition of a legume. In 1908 to 1909 there were 600 cases of beriberi annually. In the entire seventeen months since the alteration in the ration went into effect there have been but seven cases of the disease. An occasional case is to be expected, since now and then a soldier living with his family may subsist mainly on polished rice bought in the local market.

Investigations into the Etiology of Beriberi and Polyneuritis Gallinarum.—Believing that the form of polyneuritis gallinarum produced by polished rice is the result in fowls of the same deficiency in diet that causes beriberi in man, the board has been diligently investigating this disease for the past two years. Multiple neuritis does not develop among fowls fed on undermilled rice, or among those fed on polished rice and at the same time given some of the polishings removed from the grain during the process of milling and polishing. In other words, there is some protective substance in the outer layer of the kernel, and this outer layer is removed in the process of polishing. The details of our work appear in several papers.[15, 16] The results recorded in the later articles[16] are of very great importance and almost certainly overthrow Schaumann's theory that deficiency in phosphorus compounds is the cause of polyneuritis in fowls subsisting exclusively on polished rice. The general conclusions reached are as follows:

1. Polyneuritis gallinarum is not prevented by adding to a diet of polished rice any of the following substances: potassium phosphate, potassium citrate, potassium carbonate, potassium chlorid, magnesium phosphate, phytin, phosphoric acid or phosphoric acid combined with potassium chlorid, glycerin, sucrose, lime juice, extract of onions, egg albumin, nuclein, lecithin, histon bases, glycocoll, asparagin, succinamid and other amido-acids.

2. Polyneuritis gallinarum may be prevented by means of an extract of rice polishings containing only those substances soluble in *cold water and cold alcohol*. This extract, so far as at present known, has the following composition:

	Per cent.
Total solids	1.34
Ash	0.63
Phosphorus pentox'd	0.00165
Nitrogen	0.0406
Sucrose	0.88

3. Multiple neuritis in fowls fed on polished rice is probably not due to lack of phosphorus compounds in the grain, since out of each 1,000 parts of phosphorus contained in the rice polishings at least 999 parts are not concerned in preventing neuritis.

4. The neuritis-preventing substance contained in the extract of rice polishings is capable of dialysis through a parchment membrane. This excludes all colloids from consideration.

5. The neuritis-preventing substance is absorbed by animal charcoal and the filtrate through this charcoal fails to prevent neuritis.

6. The neuritis-preventing principle is insoluble in ether. After absorption by bone-black the neuritis-preventing substance is not dissolved out of the charcoal by either water or absolute alcohol.

7. An extract of dried beans when added to a diet of polished rice will prevent polyneuritis gallinarum.

The Cure of Infantile Beriberi by an Extract of Rice Polishings.—A malady, called by the natives *taon*, *bad* and *subat*, is one of the chief causes of infantile mortality in the Philippines. The disease usually occurs during the first four months of life, and is considered by many, including ourselves, to be infantile beriberi. Most of the mothers show symptoms of beriberi; the children nearly always die if they continue to feed at the breast, and they usually recover promptly if given modified cow's milk or canned milk. To eleven infants having the disease, and which continued to take the breast, we have administered the extract of rice polishings that prevented neuritis of fowls. Prompt and complete recovery occurred in all. The rapidity with which these patients recover reminds one of the marvelous improvement which follows the use of fruit-juices in infantile scorbutus. The extract is easy to make, is inexpensive, is agreeable to the infant's palate, and cures the child while it continues to nurse the mother. If the present promise is fulfilled we believe that the use of this extract of rice polishings will lead to a very marked decrease in infant mortality in the Philippines. The matter has been made the subject of a special report shortly to be published.[17]

12. Bloombergh: The Wassermann Reaction in Syphilis, Leprosy and Yaws, Philippine Jour. Sc., Sec. B, 1911, vi, 4; also in Mil. Surg., 1911, xxix, 2.

13. Chamberlain: Diphtheria in the Philippines, Bull. Manila Med. Soc., 1910, ii, 7.

14. Chamberlain: Eradication of Beriberi from the Philippine (Native) Scouts by Means of Simple Changes in Their Dietary, Philippine Jour. Sc., Sec. B, 1911, vi, 2; also in Mil. Surg., 1911 xxviii, 5.

15. Chamberlain, Bloombergh and Kilbourne: A Study of the Influence of Rice Diet and of Inanition on the Production of Multiple Neuritis of Fowls and the Bearing Thereof on the Etiology of Beriberi, Philippine Jour. Sc., Sec. B, 1911, vi, 3; also in Mil. Surg., 1911, xxix, 2. Kilbourne: Food Salts in Relation to Beriberi, Philippine Jour. Sc., Sec. B, 1910, v, 1; Multiple Neuritis of Fowls Due to Inanition, Bull. Manila Med. Soc., 1910, ii, 9.

16. Chamberlain and Vedder: Contributions to the Etiology of Beriberi, Philippine Jour. Sc., Sec. B, 1911, vi, 3; Philippine Jour. Sc., Sec. B, 1911, vi, 5. Chamberlain, Vedder and Williams: A Third Contribution to the Etiology of Beriberi, Philippine Jour. Sc., Sec. B; to appear, probably, in vol. vii, No. 2, 1912.

17. Chamberlain and Vedder: The Cure of Infantile Beriberi by the Administration to the Infant of an Extract of Rice Polishings and the Bearing Thereof on the Etiology of Beriberi, Bull. Manila Med. Soc., 1912, iv.

Miscellaneous Observations.—Many series of observations of smaller scope than the above have been completed by the board during the last two years. Among these may be mentioned the following: temperature observations to show the unsuitability for tropical wear of certain new uniform materials;[18] tests to determine the fineness of mesh necessary in bronze gauze to exclude Philippine *Anophelinæ;* examinations to prove the wholesomeness of fresh beef and emergency rations which have been kept for many years in Manila, the former in cold storage; observations on the influence of the tropical climate on the weight and the body temperature of white men; the study of a fever of undetermined type, and of an epidemic of Koch-Weeks' bacillus conjunctivitis,[19] both occurring on Corregidor Island; a report on the so-called "X-bodies," which have been thought by some to be parasites and which the board has shown to be artefacts on glass slides;[20] the finding of the *Bacillus influenzæ* in the Philippines; reports of cases of bronchial spirochetosis and pulmonary blastomycosis in the Philippines; a discussion of yaws as a cause of chronic ulceration in the tropics.[21] The above matters for which no reference numbers are given are published from time to time in the quarterly reports of the board which appear in the *Military Surgeon.*

THE DIAGNOSIS OF PAIN IN THE UPPER ABDOMEN *

JUDSON DALAND, M.D.

Professor of Clinical Medicine in the Medico-Chirurgical College and Physician to the Medico-Chirurgical Hospital

PHILADELPHIA

Pain in the upper abdomen is usually due to gall-stones or a duodenal or gastric ulcer. Pain due to uncomplicated cholelithiasis appears and disappears suddenly, without warning, and may recur at intervals of hours, days, months or years. Gall-stone colic may occur at any hour independent of, and unrelieved by, food. The pain may be from mild to agonizing, and may be associated with spasm of the diaphragm or pylorus. It is localized in the epigastrium and may radiate to the scapula; its duration and intensity depend on (a) the size of the calculus; (b) the rate of progress through the ducts; (c) impaction of the stone; and (d) amount of obstruction to the flow of bile. A large stone lodged in the common duct, causing complete obstruction, produces maximum pain and jaundice, and the gall-bladder region may be tender on palpation. The pain in severe gall-stone colic may be due to overdistention of the ducts, the gall-bladder and capsule of Glisson, spasm of the duct around the calculus, and associated pylorospasm. Anxiety, fear and dyspnea may be due to spasm of the diaphragm. The feces may contain gall-stones after an attack of colic, but their absence need not modify the diagnosis. Biliary colic, unassociated with jaundice or stones in the feces, may be caused by a calculus impacted in the cystic duct.

Gall-stones may exist in the gall-bladder without symptoms. Cholecystitis and cholelithiasis are usually associated and the former occasions the formation of mucus, serum and hyperperistalsis, all tending to dislodge the gall-stones from the gall-bladder into the cystic duct. As the lumen of the common bile-duct is larger than that of the cystic duct, the stone may speedily enter the duodenum. A moderate-sized calculus is apt to be arrested in the ampulla of Vater.

Slight attacks of biliary colic may be due to obstruction from (a) swelling of the mucous membranes of the cystic and common bile-ducts from catarrhal inflammation; (b) from masses of mucus; (c) from biliary sand; (d) from small calculi in the cystic duct, and (e) from a small stone in the common bile-duct or the ampulla of Vater. Cessation of biliary colic may be due to (a) the passage of the obstructing calculus into the duodenum; (b) return of the calculus to the gall-bladder; (c) dilatation of the ducts so that the bile may pass the calculus, thus relieving pressure; and (d) cessation of hyperperistalsis of the gall-bladder due to (1) atony; (2) excessive overdistention causing paralysis, or (3) subsidence of inflammation.

If the common bile-duct is partially obstructed, jaundice may be absent or slight; if complete, it appears promptly and is intense. If the cystic duct alone is obstructed, jaundice is absent. Jaundice occurs in 25 per cent. of all cases of cholelithiasis.

If biliary colic recurs, or if chronic gastro-intestinal indigestion and hepatic insufficiency persist, despite thorough medical treatment, surgical diagnosis and treatment is absolutely necessary and should not be delayed.

A radiograph occasionally shows gall-stones in the gall-bladder; but a negative plate does not indicate the absence of gall-stones.

Some observers have described a friction fremitus, or a friction sound, heard and felt over gall-bladders containing gall-stones. Cholelithiasis is especially apt to occur in obese middle-aged women of sedentary habits. Complications, such as local peritonitis, adhesions, perforations or cancer, may so alter the clinical picture as to render an accurate differential diagnosis impossible; but the necessity for surgical interference is usually manifest.

Pain in the upper abdomen may also be due to *cholangeitis,* which causes swelling of the mucous membranes of the bile-ducts and obstruction to the flow of bile, which becomes more viscid than normal and is admixed with mucus. Pain in simple cholangeitis is usually moderate and is referred to the epigastric or hepatic region. As a rule, acute catarrhal cholangeitis is associated with cholecystitis and may be due to extension of inflammation from the duodenum, and, therefore, gastroduodenitis frequently coexists. Jaundice is usually present.

In suppurative cholangeitis, diffused dull pain may be present in the hepatic region, with tenderness or pain on pressure, and daily intermittent fever, ranging from 97 to 105 F., with chills and sweats, closely simulating quotidian intermittent malarial fever. Pain in the gall-bladder region, aggravated by pressure, may be caused by cholangeitis from overdistention or spasm.

Ulcerative calculous cholecystitis may cause adhesions to the duodenum or neighboring structures. A gall-stone from an adherent gall-bladder may escape into the duodenum through an ulcerated opening, and when the stone is large may cause pain from partial duodenal obstruction. Ulcerative cholangeitis may cause stricture or obliteration of the bile-ducts.

18. Chamberlain, Bloombergh and Kilbourne: Report of the Board for the Study of Tropical Diseases, quarter ending Sept. 30, 1910, Mil. Surg., 1911, xxviii, 1.

19. Chamberlain: An Epidemic of Koch-Weeks' Bacillus Conjunctivitis Among Filipinos, Bull. Manila Med. Soc., 1910, ii, 5.

20. Chamberlain and Vedder: The So-Called X-Bodies as Artefacts on Glass Slides, Philippine Jour. Sc., Sec. B, 1911, vi, 5.

21. Phalen: Yaws as a Cause of Chronic Ulceration, Bull. Manila Med. Soc., 1910, ii, 2.

* Read, by invitation, before the Philadelphia County Medical Society, Feb. 14, 1912

Biliary obstruction may be produced by adhesions, by pressure from diseases of the liver, gall-bladder, pancreas, stomach, duodenum or lymph-nodes. The character, intensity, duration and radiation of the pain will depend on the cause, location and amount of obstruction to the flow of bile.

Hyperchlorhydria or *hyperacidity*, or both, may cause recurring attacks of pain in the epigastrium closely simulating ulcer or biliary colic. It occurs in patients of nervous temperament; the pain is less severe than that of ulcer or colic and recurs when the stomach is empty, and is relieved by food, alkalies or lavage. The gastric juice contains an excess of hydrochloric acid, or of lactic, acetic or butyric acids.

The pain in *chronic ulcer* is burning, boring, gnawing or lancinating, and is relieved by food, drink, alkalies, lavage or vomiting. These pains may recur regularly, two to five hours after one or more meals daily, and the attacks may persist for weeks followed by an interval of absence of symptoms lasting months or years. Pain may be slight, moderate or severe, and may occupy an area no larger than a silver quarter, and radiate to other parts of the abdomen. The epigastrium is usually sensitive or painful to pressure.

Pain in gastric ulcer depends on (a) the nature, location, extent and depth of the ulcer; (b) hyperchlorhydria or hyperacidity; (c) hypergastric peristalsis or pylorospasm; (d) overdistention by gas or swallowed air; (e) local peritonitis; (f) adhesions; (g) kind and quantity of food, and (h) sensitiveness to pain.

The location of the pain in gastric ulcer depends in part on the location of the ulcer in the stomach. The nearer the ulcer approaches the pylorus, the greater the probability that the pain will be low in the epigastrium, and will occur four or five hours after a meal, whereas an ulcer in the fundus causes pain in the upper epigastric region soon after eating. Graham and Mayo state that in pyloric ulcer the pain occurs late, four or five hours after a meal, and is located in the lower epigastrium to the left of the median line, while in duodenal ulcer the pain is in the same region, but to the right of the median line. They have doubtless observed many exceptions to this rule. *Chronic indurative ulcer* may exist and pain be absent. Evidences of gastro-intestinal indigestion are usually present, and not infrequently abnormal gastric sensations, abnormal appetite; or nausea and vomiting occur.

Hematemesis and melena are important signs of gastric ulcer, but their absence is unimportant diagnostically, and this is also true of the occult blood test. The gastric contents usually show marked excess of hydrochloric acid with lactic, acetic butyric acid and yeast-cells. Butyric acid is especially irritating to the stomach and incites vomiting. Food stagnation may be caused by pylorospasm. The fluoroscope may reveal an increase in the frequency and depth of the peristaltic waves, pylorospasm, or a spasmodic hour-glass contraction of the stomach.

Chronic indurative or indolent gastric ulcer usually occurs in the pyloric region, and is preceded by a history of recurring attacks of gastric indigestion and many of the usual characteristic symptoms of gastric ulcer may be absent. A marked peculiarity of this ulcer, masking diagnosis, is the prolonged interval of comparatively good health between attacks of gastric disorder and the disappearance of these symptoms under medical treatment. During the interval, which may be months or even years, the patient is supposed to be cured, although we know that the ulcer is present, but latent. Such an ulcer progresses intermittently, is frequently undiagnosed, and the recurring symptoms are erroneously regarded as gastric indigestion. These attacks of gastric indigestion and pain are associated with hypersecretion, hyperacidity, hyperchlorhydria, hypermotility, reverse peristalsis, gas, nausea, vomiting and acute ulceration of the base of the chronic ulcer; and when these conditions subside, symptoms disappear. This ulcer is most dangerous and it is fatal not to resort at once to surgical treatment. Medical treatment is purely palliative, and, if continued, death will ensue from hemorrhage, perforation or cancer.

The pyloric region is the most common location of ulcer and of cancer. The pain of acute perforation is sudden, agonizing and causes shock. The pain of chronic perforation cannot be differentiated from complications, such as peritonitis and adhesions. Ordinarily, chronic pyloric ulcer can be diagnosed, but when complicated by extensive ulceration, ulcer of the fundus, hour-glass contraction, perforation or adhesions, it cannot be distinguished from gall-stones or appendiceal colic. Mucous erosion or acute peptic ulcer is rare; it may be suspected, but usually cannot be diagnosed unless complicated by hemorrhages, peritonitis, perforation or obstruction.

Chronic duodenal ulcer is more common than gastric ulcer and occurs more frequently in males than in females, according to statistics gathered at the operating table by W. J. Mayo. In acute duodenal ulcer, the cause, character, location and extent of the subjective pain, and pain on pressure, closely resemble that of pyloric ulcer. Hyperchlorhydria and hyperacidity are less common in duodenal than in gastric ulcer. A differential diagnosis between pyloric and duodenal ulcer may be difficult or even impossible, but fortunately is usually unnecessary, both requiring surgical diagnosis and treatment. Combined pyloric and duodenal ulcer have been observed.

In pyloric and duodenal ulcer the pain usually occurs three to five hours after a meal, corresponding in time to the physiologic activity of the pylorus and duodenum. If the gastric contents, secured when pain begins, three hours after a meal, show no hypersecretion, hyperacidity or hyperchlorhydria, the ulcer is probably duodenal. The pain is usually in or near the epigastrium and varies in location, duration and intensity from the same causes that produce pain in gastric ulcer. As a rule, there is localized tenderness on deep pressure over the epigastrium. Hemorrhages occur and, if they are small, the blood may be detected only in the feces; if they are large, it may be rejected by vomiting. Death from hemorrhage in duodenal ulcer has occurred from ulceration of the pancreaticoduodenal artery. Chronic indolent duodenal ulcer may occur precisely as does chronic gastric ulcer. It is accompanied by the same difficulties in diagnosis, the same dangers to life, and requires the same prompt surgical treatment.

The thin wall of the duodenum permits perforation to occur more frequently in duodenal than gastric ulcer. When complication exists, duodenal ulcer cannot be differentiated from gastric ulcer or gall-stones, but indications for surgical diagnosis and treatment are usually evident. Duodenal cancer is rare.

Kinking of the duodenum, due to adhesions which have been caused by a duodenal ulcer, may produce colicky pains in the epigastrium, which often recur regularly from three to five hours after meals. The presence of a duodenal kink may be diagnosed by a radiograph

provided pyloric or duodenal ulcer or gall-stones be excluded.

In gastric carcinoma pain is more or less epigastric in location, dull and depressing in character, more or less constant and increased by pressure and food. The frequency and character of pain, when it occurs, are influenced by intercurrent hypersecretion, hyperacidity, local peritonitis, ulcer, perforation or adhesions. Cancerous pyloric stenosis may cause pain from distention of a dilated stomach by food, liquids or gas, and also from cramp-like peristaltic waves endeavoring to force the gastric contents through a stenosed pylorus. Cancer of the stomach, even when far advanced, may be painless, and in more than half the cases begins in the base of a gastric ulcer.

A palpable tumor in the upper abdomen, due to gastric carcinoma, is usually movable, influenced by respiration and painful when compressed. Such a tumor may be immovable because of adhesions. The gastric contents usually contain partially digested blood, food and liquid, achlorhydria, hypochlorhydria, hypersecretion, excess of lactic acid and yeast plants. The feces frequently give a positive occult blood test.

The diagnosis of gastric carcinoma may be easy, difficult or impossible; easy in hopeless, advanced cases with pyloric obstruction and tumor; difficult or impossible when complications occur, or when latent. As an early diagnosis and prompt removal of a gastric carcinoma is the only measure that will save life, and as an absolute early diagnosis of cancer of the stomach is seldom possible, search should be made for indications for a surgical diagnosis.

Any inexplicable persistence or recurrence of the familiar syndrome of chronic gastric indigestion, despite efficient medical treatment, demands immediate surgical diagnosis and treatment.

Space does not permit of a discussion of the diagnosis of pain in the upper abdomen due to neuritis; pressure on the roots of spinal nerves by vertebral osteo-arthritis; spinal meningitis; disease of the spinal cord; tabetic gastric crises; angina pectoris; pneumonia; pleuritis; diseases of the liver; subphrenic abscess; renal calculi, calculous pyelitis; hydronephrosis; sarcoma of the kidney; perinephritic abscess; cancer or abscess of the head of the pancreas; acute hemorrhagic pancreatitis; disease of the lymphatic glands; diseases of the intestines; intestinal obstruction; lead colic or appendicitis.

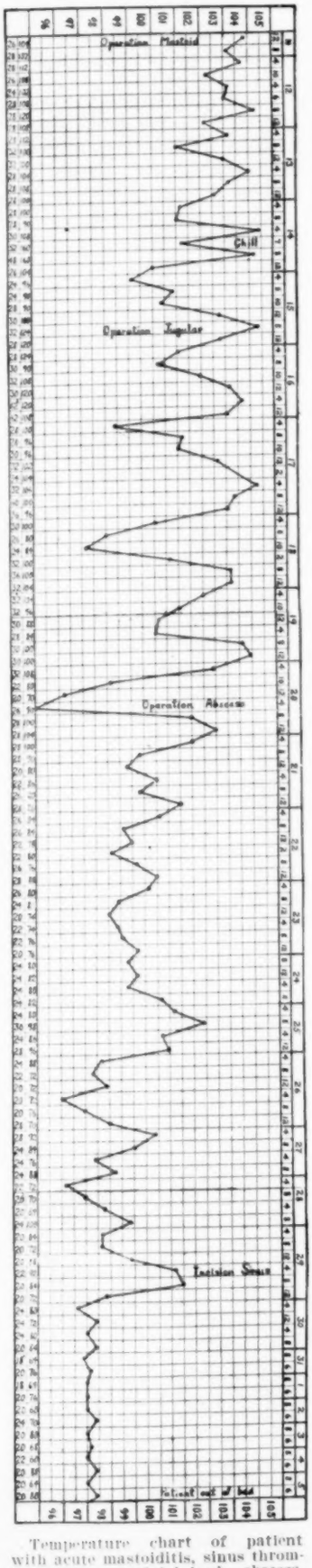
317 South Eighteenth Street.

ACUTE MASTOIDITIS, SINUS THROMBOSIS, SUPERFICIAL BRAIN ABSCESS; RECOVERY *

FRANK TUCKER HOPKINS, M.D.
NEW YORK

Patient.—In July, 1911, I was asked, by Dr. Walton Martin, to see a patient with mastoiditis who had that day been admitted to St. Luke's Hospital. The patient, a boy aged 15, well-developed and vigorous in appearance, had had a discharging ear for two weeks and mastoid pain for four days. Myringotomy had been done twice, the last time four days before I saw him.

Examination.—I found an abundant discharge in the right ear, the canal somewhat narrowed, the membrane bulging in its posterior and upper portions. The mastoid was very tender over the antrum and over the tip. The patient's temperature was 104.8 F. rectal, the pulse 104, respirations 26; his mental condition was dull, and he looked decidedly ill. A smear from the aural discharge showed a streptococcus infection. The heart, lungs and kidneys were apparently normal and there were no cerebral symptoms; but the very high temperature showed serious complications. An immediate mastoid operation was, of course, indicated, and at Dr. Martin's request I operated.



Temperature chart of patient with acute mastoiditis, sinus thrombosis and superficial brain abscess.

First Operation. — The mastoid was found to be very extensively involved; there was general necrosis with a good deal of free pus. The dura was exposed and appeared healthy. The sinus was also exposed. While it showed a lack of luster there was no apparent clot, for a small puncture caused free bleeding from below and from above. At the completion of the operation the usual dressing was applied, the sinus being carefully protected with a separate layer of iodoform gauze. I had hoped to extend my operation to include the jugular, but at this point the patient's pulse was so rapid and weak that I did not feel warranted in doing more at that time, and so postponed further operation until the next day. The family, however, were reluctant to have a second operation, and it was not until the fifth day, four days after the first operation, that they would consent to the removal of the jugular. In the meantime, as may be seen by the chart, the temperature had become typically that of a sinus thrombosis, and the boy had had two chills, one of which was severe. The blood-count, made the day after the operation, showed a leukocyte count of 17,000 white with 83 per cent. polynuclear. The blood-culture, negative for the first twenty-four hours, at the end of the second day showed streptococci in two flasks. Examination of the fundus of the eye was negative, and there were no cerebral symptoms except that of lethargy, which was easily accounted for by the fever.

Second Operation.— The chills, the sudden extremes

* Read before the Otological Section, Academy of Medicine, Jan. 12, 1912.

of temperature and the prostration at last served to convince the family of the necessity of another operation, and on the fifth day I removed the jugular. The vein was found to be absolutely empty, making the operation difficult and prolonged, so that when it was completed the patient's condition did not permit an exploration of the sinus. I therefore deferred this operation for a day, but again the family's objections compelled a further postponement.

The temperature on the day after the jugular was removed fell to 101.5 F. but rose again to 104.6 and for three days varied from 105.2 to 98.2. The patient was dull, much duller than before, and inclined to sleep a good deal. He was also slightly delirious at times; but, except that the pulse was not very rapid—not so rapid as the temperature would seem to demand, being rarely above 100 and sometimes as slow as 88—except for this there was no indication of cerebral involvement. There was no stiffness of the neck, no exaggerated reflexes. The Babinski reflex was absent and the other reflexes were dull. After five days of anxious waiting the family consented to an operation for the removal of the sinus clot. Just before the time arranged for the operation the patient had a hard and protracted chill, and the temperature dropped to 95.8.

Third Operation.—At this operation the sinus was found discolored, somewhat gray and necrotic in appearance and slightly flattened rather than full. Palpation showed nothing. I made an incision of an inch in length toward the bulb and at once a foul-smelling somewhat purulent and bloody fluid came away, while further exploration brought out small masses of disorganized brain-tissue. I had evidently opened into a brain abscess. The cavity was not apparently deep or extensive, but I made no very exact exploration of it, not wishing to disturb the brain-tissue more than necessary.

It is evident that we had here a broken-down thrombus forming an abscess on the brain surface, that the pus had invaded the brain-substance, forming an abscess in the brain close to the surface, and that the abscess so formed had distended the brain surface, pressing it into the overlying sinus cavity so that when I opened the sinus I cut directly into the brain.

As there was no bleeding either from above or below, I drained the abscess by the insertion of iodoform gauze in the opening which I had made, and dressed the rest of the mastoid wound in the usual way. I did not attempt to explore the sinus further. The patient's condition was very serious when the operation was completed, and it was two hours before he rallied well.

Postoperative Course.—During the four days following this operation the temperature remained low, generally between 99 and 101, and the dulness and apathy of the patient passed off. Then there began again to be fluctuations of temperature, a rise to 102, a fall to 97.2, but until the fourth day these variations of temperature were not rapid or sudden, and there was no chill. On the fourth day at the bedside, dressing, I found that the upper portion of the exposed sinus extending toward the torcular was soft to the touch. So with an exploring-needle I drew off a little blood-stained serum, and followed this exploration by opening the sinus freely for about an inch toward the torcular, removing thereby an additional quantity of fluid, and then packing the cavity with iodoform gauze. The cavity of the sinus here stood open and was clearly discernible, with the solid clot showing farther up. The fluid removed by the exploring-needle showed the presence of streptococci.

After this, as the chart shows, there were no further disturbances of temperature and no other complications. The patient made steady improvement to a good recovery. The neck wound healed rapidly and satisfactorily, and the mastoid wound was absolutely healed in seven and a half weeks from the day of the first operation. The hearing was perfect.

The interest of this case lies largely in the unusual character of the brain abscess. This abscess might be termed a subdural abscess, but as the pus had invaded the brain-tissue it was, pathologically, more than subdural. Nor could it properly be called, in the ordinary acceptation of the term, a brain abscess as that implies an infection through intermediary channels, while this was clearly due to infection by contiguity. I have used therefore the term "superficial brain abscess" as being more satisfactory for its description.

Owing to the confusion of terms, references to this form of abscess are very hard to find. There are, I believe, two such cases in the list of brain abscesses published by Dr. Dench, in 1907, in a monograph entitled "Otitic Brain Abscess,"* but in the literature published since then I have been able to discover none.

182 West Fifty-Eighth Street.

THE VALUE OF THE LOEFFLER METHOD OF SPUTUM EXAMINATION

CHARLES SPENCER WILLIAMSON, B.S., M.D.
Professor of Medicine and Clinical Medicine, University of Illinois
CHICAGO

In spite of the very great amount of attention which has been paid to the methods of detection of tubercle bacilli in the sputum, but little real progress was made prior to the introduction, by Uhlenhuth, of antiformin into the technic. The old and uncertain plan of endeavoring to pick out the caseous-looking particles, a procedure which involves much judgment, was only too often productive of nothing but disappointment. If no caseous particles could be found, as is so often the case with thin, mucoid sputa, recourse must needs be had to taking several portions at random and making from these the smear to be examined.

Prior to Uhlenhuth's communication[1] several methods existed for "enriching" the sputum, either by digestion or by sedimentation in various ways, but all of them were either inefficient or so cumbersome as to be totally unavailable for the daily needs of even the skilled worker, and, of course, much less adapted for general use. The method of Ellermann and Erlandsen,[2] by far the best of these, is probably quite as efficient as the original Uhlenhuth procedure, but is difficult to carry out and requires much time. When writing on the subject in 1910, I considered it the best method then existing.

Since the introduction of antiformin a rather widespread interest has again been aroused in the subject, and a number of modifications of the original Uhlenhuth procedure have been introduced. This is the best reason for believing that the original method was not entirely satisfactory. A faithful trial of these methods, as soon as they came to my notice, convinced me that none of these methods was entirely satisfactory, although several of them were a distinct advance on the older methods. Immediately following Loeffler's communication,[3] in the latter part of 1910, a careful trial was given his method too, and the results were such an improvement over those obtained by other procedures as to convince one that the method marked a substantial advance. A series of sputum examinations was undertaken to determine the utility of the method under ordinary laboratory conditions.

In all, my experience extends to well over 300 examinations, of which 171 were made by both the simple smear and the Loeffler procedure. The sputa were obtained, for the most part, from fourteen patients,

* Dench: Tr. Am. Oto. Sc., 1907, x, 486.
1. Uhlenhuth and Xylander: Arb. a. d. kaiserl. Gesundheitsamt, 1908, xxxii, 158.
2. Ellermann and Erlandsen: Ztschr. f. Hyg., 1908, lxi, 219.
3. Loeffler: Deutsch. med. Wchnschr., 1910, xxxvi, 1987.

Some of these had cases of early tuberculosis, in which bacilli were demonstrable in the sputum only with great difficulty, often only after numerous smears had been examined. Others were patients who had been under treatment for greater or less lengths of time, and in whom the bacilli, originally fairly easy to demonstrate, were becoming increasingly scarce.

In adopting this plan, two distinct advantages were obtained. First, the cases were all known cases of tuberculosis. Secondly, by observing the sputum of the same patients at intervals of a few days, a better judgment could be had as to the utility of the method in judging of the progress of the case. Whenever a sputum failed to show bacilli by the examination of two simple smears, a Loeffler preparation was made. In all cases each smear was examined for fifteen minutes before being called negative. Of the 171 sputa examined in both ways (all of which, as just stated, had failed to show bacilli in two simple smear preparations), sixty-four showed bacilli by the Loeffler procedure, an average of over 37 per cent. In other words, in nearly two-fifths of the sputa in which bacilli were so scarce as not to be demonstrable by the examination of two carefully made smears, they were readily demonstrated by the use of the Loeffler method. While such numerical results can never pretend to express the value of the method with mathematical accuracy, they at least demonstrate that bacilli can be found in this way very much more frequently than by any other method thus far published, and this, too, with ease, rapidity and certainty.

TECHNIC

As described by Loeffler, the procedure is as follows:

1. To a given amount of sputum is added an equal amount of 50 per cent. antiformin, and the mixture placed in a Jena glass flask and brought to the boiling point. This occurs with the production of much foam, and even the toughest and most purulent sputa promptly go into solution.

2. To each 10 c.c. of the resulting solution is added 1.5 c.c. of a mixture of one part chloroform and nine parts alcohol. This is then violently shaken (best in a 25 c.c. glass-stoppered measuring-cylinder) for about two minutes, or until thorough emulsification has taken place. This has for its purpose the impregnation of the lipoid capsules of the bacilli with chloroform, whereby their specific gravity is greatly increased. The alcohol assists in the emulsification.

3. This emulsion is now placed in a centrifuge tube and revolved, preferably at as high a speed as is obtainable, for fifteen minutes. In the bottom of the tube will be found a few drops of clear chloroform, then a firm, narrow disk of sediment, which is sufficiently tenacious to be capable of removal *en masse*, and above this a thin fairly clear fluid. This small disk which contains undissolved matter and the tubercle bacilli, is now removed *in toto*, placed on a slide, the excess of antiformin removed by a bit of filter-paper, a small drop of egg albumin added and well mixed with the platinum loop, and the whole spread between two slides. These are then fixed in the usual way by passing through the flame, and are then stained in any way desired. Loeffler prefers staining with carbolfuchsin, decolorizing with 3 per cent. hydrochloric acid alcohol, and counterstaining lightly with 0.1 per cent. solution of malachite green.

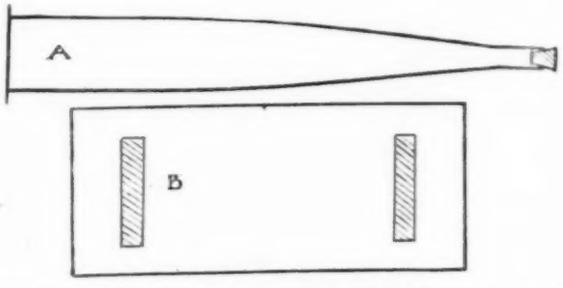
Prepared in this way, the slides are elegant in appearance, very uniform in thickness, and, most important of all, the distribution of bacilli is also very uniform. Their staining properties are unimpaired. The uniform thickness permits of rapid decolorization, only a few seconds being required. All organisms, excepting acid-fast bacilli, are destroyed.

To the experienced laboratory worker, the method is a simple one, and yet there are certain precautions which it may not be superfluous to mention.

1. The antiformin must be fresh and active, and should be kept in the dark. Any sample which does not readily, in the proper concentration, dissolve the sputum when brought to the boiling point is worthless. Many samples prepared extemporaneously and having a supposedly similar composition are worthless. One of my colleagues, an experienced worker, failed with the method because of inability to obtain solution of the sputum. On procuring antiformin in the original package, all difficulties vanished.

2. The emulsification should be thorough. This requires generally about two minutes of vigorous shaking.

3. The fixative should be egg albumin to which is added 0.55 per cent. phenol (carbolic acid) as a preservative. Fixatives containing glycerin are not suitable. In the preparation of this albumin, the phenol should be diluted to 1 per cent. and this added from a burette, drop by drop, with constant stirring to the white of egg until the proper amount has been added.



Schematic diagram of (A) improved centrifuge tube, and (B) copper bath.

In regard to a possible impairment of the staining-properties of the bacilli, Loeffler determined that as long as the boiling was not continued over fifteen minutes the bacilli took the stain as well as under the usual conditions. Since it is usually necessary to boil for only a few seconds, there is no danger to be apprehended from this source.

I have followed the technic, as thus given, with accuracy and can strongly recommend it, not only from the standpoint of exactness, but also of rapidity and simplicity. One of the features most appreciated is that because of the exceedingly uniform distribution of the bacilli in the preparations, they may generally be found after but a few seconds' examination, if they are to be found at all. This spares one the eye-straining and tiresome searching necessary in the old methods. Since the sputum is sterilized in the process of boiling with antiformin, it may be handled with impunity, a desideratum of considerable importance to a general practitioner, who is usually indifferently versed in the methods of handling virulent organisms.

Only in two respects have I encountered a serious difficulty. With the ordinary form of centrifuge tube, it was often very difficult to obtain the disk of sediment entire, as it almost invariably was broken up in the efforts necessary to extract it from the bottom of the tube. To obviate this, I have devised a centrifuge tube

which is open at both ends and drawn out at the smaller end, so that the last half inch is of uniform caliber, and of a size to be properly closed by one of the little rubber stoppers commonly used in hypodermic phials. These can be readily made by drawing out an ordinary centrifuge tube and cutting off the smaller end, and with the tube, as thus modified, the obtaining of the sediment is a matter of only a moment's time. After the supernatant liquid is poured off and the stopper removed, the little disk, which is of the size and shape of a small tablet triturate, drops out of the small end by itself or after a few light taps. As the stoppers are inexpensive a new one may be used each time.

The second difficulty applies to all methods alike. To heat the staining fluid on the slide is generally untidy, and leads to "sloppy" work. A crust is apt to form on the slide, which interferes with uniform decolorization. If carried out in this manner, actual boiling of the fluid is difficult. Most laboratory workers are agreed that probably many of the bacilli take the stain with difficulty, so that a very intense overstaining is greatly to be desired. To this end a small copper vessel was devised which has proved a great convenience and time-saver. It is made of heavy copper, a little longer and wider than the slide and with small strips soldered in, so that the slide does not rest on the bottom. In this way possible overheating is prevented, since a thin layer (1/16 or 1/8 inch) of fluid is between the slide and the bottom of the copper bath. The depth is just enough (about 5/16 inch) to cover the slide with about 1/8 inch of staining fluid. In this bath the specimen may be readily boiled for several minutes, if desired, and any wished for degree of staining attained. The slide is easily removed by a pincette, and the staining is, of course, absolutely uniform.

In addition to the series of sputa which were examined with the specific intention of testing the practicability of this method, some of the other sputa examined showed interesting results. In one case, a patient apparently in robust health had several very large hemorrhages in rapid succession. Called to see the case in consultation, I found the physical signs so slight as hardly to warrant the diagnosis of pulmonary tuberculosis. There was no sputum in the ordinary sense of that word, and all that was obtained was a piece of an apparently pure blood-clot. Nevertheless, in this very unpromising specimen, bacilli in large numbers were readily demonstrated by the Loeffler method.

In pure, or nearly pure, watery sputa, the method is ideal. The specific gravity of these being low and the solution very complete, deposition of the sediment is most satisfactory and the supernatant fluid may be perfectly clear. These sputa, as is well known, are very difficult to examine by the usual smears.

The extreme uniformity of the preparations permits a much more accurate estimate of the number of bacilli present in a given sputum, since an average of all the different portions of the sputum is obtained in this method.

SUMMARY

1. The Loeffler method will, under ordinary laboratory conditions, show tubercle bacilli in about 37 per cent. of sputa in which the organisms are so scare as not to be demonstrable in the usual way.

2. The entire procedure requires only about twenty minutes, or twenty-five at the most.

3. The actual time required is not infrequently less than that required for the examination of simple smears, since the distribution of the bacilli in the preparation is so uniform that, when present at all, they may usually be found after but a moment's search.

4. A much more accurate estimate of the progress of a given case may be had by this method (in so far as this is obtainable from the sputum alone) than by the examination of small particles alone.

31 North State Street.

AN EMERGENCY CANNULA

TRANSFUSION IN A THIRTY-SIX-HOUR OLD BABY SUFFERING FROM MELENA NEONATORUM

BERTRAM M. BERNHEIM, M.D.
Assistant in Surgery, Johns Hopkins University
BALTIMORE

Jan. 1, 1912, I was called to transfuse a baby, 36 hours old, suffering from melena neonatorum. Following a very short and spontaneous labor the boy, who weighed 8½ pounds, had progressed nicely for ten hours, with several passages of meconium, when suddenly at 10:30 a. m. there was a large stool consisting almost entirely of bright red blood. From that time until 9:30 p. m. he passed considerably quantities of blood, at intervals of about every three hours. There had been no vomiting or apparent pain. He had retained a little mother's milk and water, to which had been added some calcium lactate.

While Drs. J. Whitridge Williams, Richard Follis and J. Mason Knox were discussing the advisability of transfusion, the baby had two more stools of this same bright red, practically unclotted blood. He looked colorless, his breathing was labored, while the pulse at the wrist was almost imperceptible.

Transfusion, made unusually difficult because it was of necessity performed at the home instead of at the hospital, and because of the minuteness and delicacy of the child's vessels, was successfully accomplished. Nine hours after operation all the blood which had accumulated in the intestinal tract had been expelled in the form of small dark-red clots, and the regular course of a new-born child's progress set in. No further hemorrhages occurred and within two and a half weeks the normal weight was regained.

In this instance the suture method of anastomosing blood-vessels was out of the question and my three-pronged cannula was used.[1]

Because of its size, the femoral vein of the infant was selected, but it was enormously difficult to secure even enough of this for easy manipulation — especially in the actual uniting of father and child.

The difficult performance of this transfusion caused me to recognize the reasons that it is not a generally successful procedure in an emergency. When the loss of a moment may count against a life, the complicated technic of the operation must be reduced. To this end a simpler cannula must be devised, although the instruments now in use are theoretically perfect and preferable in cases in which there is no hurry.

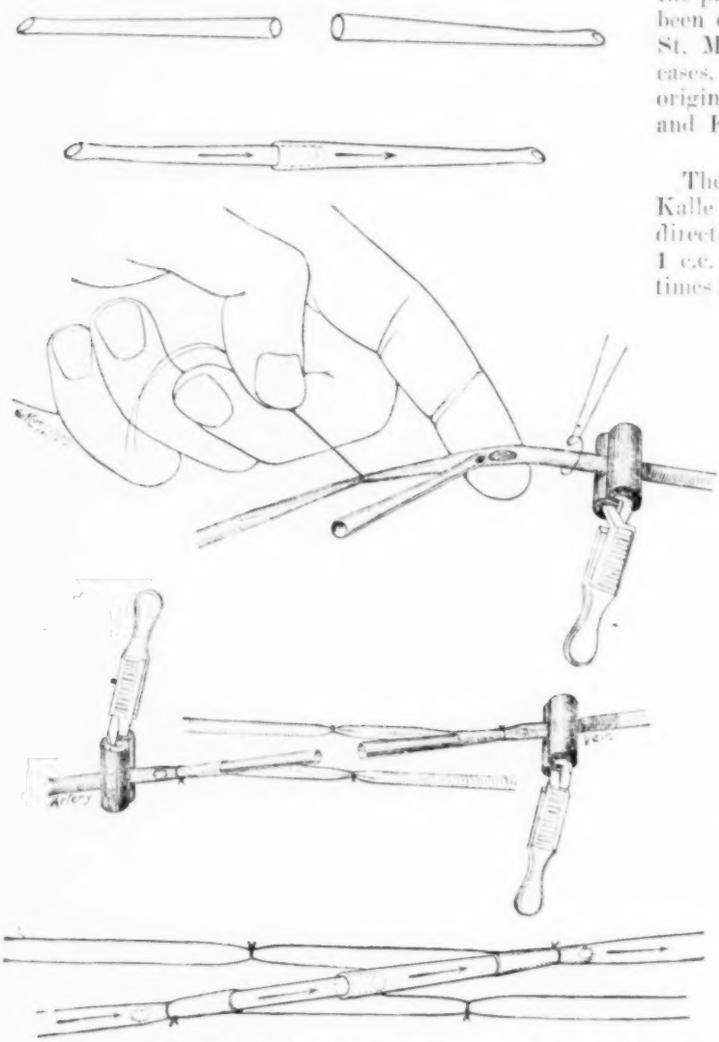
For emergency I believe that a cannula in two pieces, one of which can be rapidly inserted into the artery of the donor, and the other one into the vein of the recipient, by separate crews of operators, is best. A minimum of dissection is required here, and after the insertion of the two parts of the cannula, the patients can be apposed, the instruments immediately locked and the blood-flow started.

I have devised a simple instrument after this idea. Two hollow tubes, each 4 cm. long, are bulbous at one end in order to form a neck for a retaining tie, and bevelled to facilitate entrance into the vessel; the other

1. Bernheim, B. M.: Ann. Surg., October, 1909.

ends are tubular and fitted for invagination. The instrument is constructed in two sizes as regards the bore of the smaller ends, thus fitting the vessel of any individual.

In theory, intima should be apposed to intima to prevent clotting; in practice, however, it has been demonstrated that blood will flow through a paraffin-lined tube for quite a time without clotting. An oil, such as liquid petrolatum, which is easy to handle and always at hand, serves as well as paraffin and has been used in my experimental work.[2]



Emergency cannula and various steps of the transfusion process with its aid.

In one experiment, after only five minutes of transfusion, the donor (dog) was so nearly exsanguinated that it was necessary to discontinue. In another, the well-oiled cannula was simply inserted between the artery and vein of the same dog and the blood allowed to flow. At the end of fifteen minutes, the flow was as strong as at the beginning of the demonstration.

I feel justified in claiming that for all practical purposes this tube can be depended on to supply blood long enough to tide any individual over a grave emergency, saving lives formerly lost and enlarging the field for usefulness of transfusion.

2319 Linden Avenue.

2. The experimental work for this article was done in the Hunterian Laboratory of Experimental Medicine, Johns Hopkins University.

A SIMPLIFIED TECHNIC FOR THE APPLICATION OF THE GLYCYLTRYPTOPHAN TEST TO GASTRIC CONTENTS

FRANK SMITHIES, M.D.
Gastro-Enterologist to St. Mary's Hospital (Mayo Clinic)
ROCHESTER, MINN.

For those who desire to make routine observations on the presence of peptid hydrolyzing enzymes in stomach extracts (particularly in cases of carcinoma ventriculi), the procedure here described may prove of value. It has been employed in the laboratory of gastro-enterology at St. Mary's Hospital (Mayo Clinic) in more than 800 cases. The results have been as dependable as with the original "glycyltryptophan test" described by Neubauer and Fischer.[1]

GLYCYLTRYPTOPHAN TEST

The preparation of this dipeptid, regularly sent out by Kalle and Company (Biebrich am Rhein), under the direction of Neubauer and Fischer, consists of practically 1 c.c. of a glycyltryptophan solution, under about two times its volume of toluol. This is contained in a thick-walled, glass-stoppered bottle. The body of the bottle is marked, just below its neck, to indicate to what extent the volume of contained glycyltryptophan solution is to be diluted with filtered gastric extract. Examination of the bottle's capacity demonstrates that the proportion of glycyltryptophan and gastric extract, when the test is set up, is approximately, as one to ten. Carried out in this manner, each test costs about 65 cents.

Inquiry showed it possible to obtain a solution of the glycyltryptophan under toluol from Kalle and Company in bottles holding from 10 to 150 c.c. Accordingly, we have been accustomed to obtain the dipeptid in bulk in this manner.

The test is set up as follows:

1. Test-tubes of 10 c.c. capacity are employed. These should be carefully cleaned with boiling water and dried inside. They are numerically marked for identification with a wax pencil. Into each test-tube is carefully measured, by means of a sterile graduated pipette, 0.5 c.c. of the glycyltryptophan solution. (Closing the proximal end of the pipette with a finger allows the pointed distal end to pass through the toluol layer overlying the glycyltryptophan solution, and the dipeptid to be withdrawn with the minimum of contamination.) Five c.c. of the recently secured, filtered gastric extract are then measured by a clean, graduated pipette and poured into the correspondingly numbered test-tubes to which glycyltryptophan solution has been already added. Two control tubes are used. In one is placed 0.5 c.c. of glycyltryptophan solution and 5 c.c. of normal salt solution and into the other is placed 5 c.c. of normal salt solution, without added glycyltryptophan solution. In the entire series, each tube next receives 0.5 c.c. of toluol (Toluene, Merck). The contents of the tubes are then mixed by inverting several times. The tubes are next placed in a water-bath (an incubator may be used) at 37 C. for twenty-four hours.

2. At the expiration of the incubation period, the test-tubes are removed from the water-bath. Clean test-tubes

1. Neubauer and Fischer: Deutsch. Arch. f. klin. Med., 1909, xcvii, 499.

of 10 c.c. capacity and numbered to correspond with the gastric extracts tested, as well as the controls, are set in racks. Into each of these tubes is measured, by means of a graduated pipette, 2 c.c. of the glycyltryptophan-gastric-extract mixture lying below the toluol in the recently incubated tubes. To each tube are then added three drops of a 3 per cent. glacial acetic acid in distilled water solution. The tubes are well shaken. Bromin vapor is allowed to flow into each tube, until it appears amber yellow above the contained fluid. The tubes are again shaken. Examination by daylight (preferred) or by white, artificial light is now made for evidences of the characteristic rose-pink reaction between the amino-acid (tryptophan) and the bromin.

TRYPTOPHAN TEST

As suggested by Weinstein,[2] this is made, as routine, on the fresh gastric extracts, inasmuch as occasionally, swallowed saliva, amino-acids, regurgitated duodenal contents and the like may give the bromin vapor reaction, before incubation or without the addition of a dipeptid such as glycyltryptophan. Five c.c. of each fresh, filtered gastric extract is poured into test-tubes of 10 c.c. capacity, acidulated with the 3 per cent. acetic acid solution and treated with bromin vapor as above. If no characteristic rose-pink color results, the tubes are incubated with the corresponding specimens that have been mixed with glycyltryptophan solution. For accurate work, it has seemed best to us to cover these "tryptophan test" contents with a layer of toluol. At the end of twelve, twenty-four and forty-eight hours, note is made of changes in color, and these results are compared with those obtained with the preparations in the first series.

Advantages of the modification:

1. The expense of the test is reduced to one-tenth of the commercially marketed, sealed bottle method. This is a considerable saving where hundreds of tests are made as routine, or where frequent tests are made in a given case.

2. Interpretation of color-changes in the thick-walled glass bottles is often difficult. Slight changes in color are readily distinguished in the small, thin glass test-tubes.

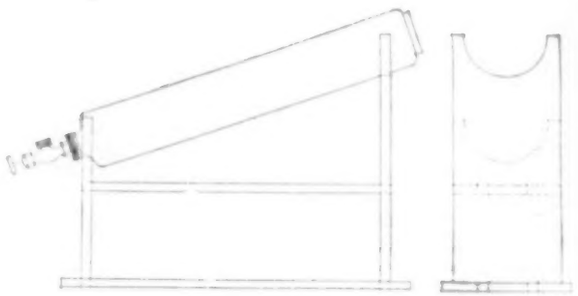
3. Breakage is not infrequent where the thick-walled, sealed bottles are used. This means another test-bottle or a questionable result.

4. Occasionally 10 c.c. of filtrate, as required by the bottle method, cannot be obtained. If less be used, the extract may not contain sufficient enzyme to hydrolyze the glycyltryptophan.

A SIMPLE METHOD FOR MAKING CARBON DIOXID SNOW*

MAURICE B. AHLBORN, M.D., WILKES-BARRE, PA.

I have found all the methods for the production of carbon dioxid snow to be extremely unsatisfactory, as with a piece of chamois skin over the vent of the tank nothing could be produced at best but soft snow, which was almost melted by the time one kneaded it into a mold or crayon. Filter-paper tubes and other porous materials gave little satisfaction because of the frequent bursting of the paper, to say nothing of the necessity of swaddling the cone of paper with towels or other insulating materials during the flow of gas from the vent. I found that in the first place tilting of the gas tank to an angle of about 45° gave a sufficient pressure at the vent to insure utilization of all the gas contained in liquid form in the ordinary tank of carbon dioxid, used in drug stores for soda-water charging, which can be purchased in any town from the local druggist, in varying sizes. The commercially exploited apparatus for the production of carbon dioxid snow is costly and because of the trouble and expense involved in the use of a small tank of special size, which is soon emptied, is unpractical for men who live outside of larger cities. Some simpler method of producing this material quickly and cheaply, in sufficient quantity for practically any use, was greatly needed. In the first place some form of holder was necessary for the ordinary-sized tank used by the drug-stores, which would support it firmly at the right angle, allowing it to be moved about easily (as these tanks are somewhat explo-



Figs. 1 and 2.—Position of tank on stand and detail of stand construction.

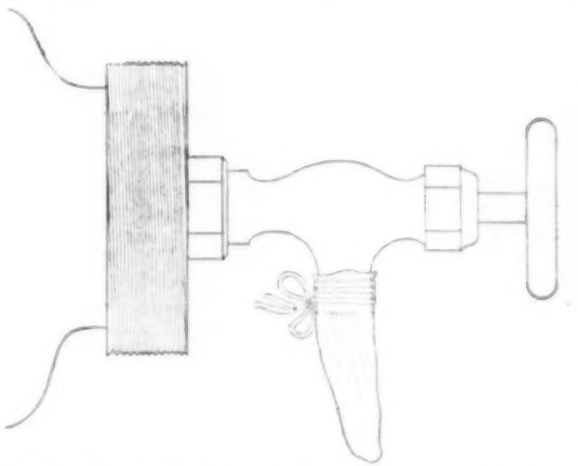


Fig. 3.—Finger of old glove tied securely to outlet of tank.

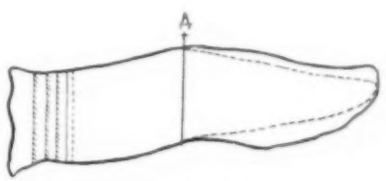


Fig. 4.—Glove-finger removed from outlet of tank, dotted line showing snow molder before cutting leather at Point A.

sive and very heavy), and which could be built at a small cost. Such an inexpensive frame, strongly built of oak and mounted on casters, is shown in the diagrams, Figures 1 and 2. The tank should not be kept for any length of time in a room the temperature of which is much above 70 F. as the gas is explosive. A cool cellar is the best place to store the tank when not in use.

I found the best material in which to make my snow was an ordinary glove-finger, one of porous leather preferred. The glove-finger should be tied firmly over the vent of the tank with a shoe-string tied in a single bow-knot, which is best because it can be untied quickly, so that there will be little melting of the crayon. This should be firmly wrapped two or three times about that part of the finger which is pulled over

2. Weinstein: THE JOURNAL A. M. A., Oct. 28, 1911, p. 1420.

* For other articles on the method of making carbon-dioxid snow see THE JOURNAL A. M. A., May 7, 1910, p. 1519; Oct. 3, 1909, p. 1205; Aug. 7, 1909, p. 459; March 6, 1909, p. 786; Feb. 6, 1909, p. 464.

the vent (Figure 3). There should be no pin-holes in the glove-finger. The wrench is placed on the tap of the tank and turned gradually until a moderate stream of gas enters the finger and balloons it just to tightness, as further pressure will do no good and will usually end by bursting the finger. In about a minute the finger will feel as if filled with putty, which means that the snow is forming right. Now the flow of gas should be continued with the same pressure and in a short time the glove-finger will be found to be as hard as an icicle. The string is then untied and the finger pulled off the vent. If the snow is to be kept for a time it should be placed in a large test-tube or closed porcelain dish and set directly on the ice, in a refrigerator, where it will keep for some hours if care is exercised. It is best, however, to use the snow at once. To make the crayon a sharp knife should be run around the glove-finger about 1 or 1½ inch from the end, so that it severs the end of the leather finger but does not cut deeply into the snow (Figure 4). When the loose end of the finger is pulled off an ice mold protrudes. The remainder of the glove-finger becomes the holder of the crayon while the snow is applied to the patient. The protruding end of the crayon of snow can now be sharpened like a lead-pencil with a sharp knife, and can be thus applied to a very minute area. The size of the crayon is readily regulated by tying a string anywhere along the length of the glove-finger.

This method of making carbon dioxid snow is so simple that I am sure it will be a help to the busy man who wants to use a therapeutic agent of known value and is hampered by the expense or difficulty as to its easy production.

99 North Franklin Street.

REPORT OF A CASE OF SIMULATED, AND ONE OF A TRUE MAXILLARY EMPYEMA, BOTH OF DENTAL ORIGIN*

M. R. Bren, M.D., Denver

Case 1.—*History.*—Mr. A. S., aged 38, a laborer, was first seen Nov. 27, 1911. Twelve years before all the teeth of the upper jaw had been extracted, and about one year before he had suffered from a condition similar to the one present at this time, although considerably less severe, from which he quickly recovered without treatment, except the use of home remedies. Three days previous his work necessitated standing in water for a considerable length of time. The right side of his face became swollen and painful in the evening. The next day the swelling had increased to such an extent that by night the eye could not be opened. When observed at the office the following day, the right side of his face was so swollen as to be almost level with his nose. The eye was nearly closed by a superficial edema of both lids. He complained of some pain, though not very severe.

Examination.—There was a hard swelling about the size of a walnut in the region of the canine fossa, with some heat and tenderness. The edema of the eyelids appeared to involve only the skin and not the deeper tissues. Nasal examination showed a normal mucous membrane and absence of pus. There was no swelling or congestion of the turbinates. The nasal septum was deflected to the left. An absolute shadow on the right side was observed on transillumination. The left side was clear. The mouth revealed a full set of teeth on a plate in the upper jaw. There was pus on the buccal surface of the plate and in the gingivobuccal angle on the right side. On removal of the plate the gums showed no inflammation or swelling; they presented a healthy appearance except for two small fistulous openings, one in the inferior border in the region of the canine tooth, the other, about half an inch farther back on the buccal surface, was discharging pus. These fistulas communicated with each other. A probe passed into the former came in contact with a loose, hard substance which on being moved permitted the escape of pus. This hard substance proved to be the root apex of the canine tooth, measuring about ⅛ inch in length; its removal was followed by the discharge of about a dram of pus. There was no communication between this fistula and the antrum.

Recovery was prompt, and the swelling disappeared in the course of a few days.

Remarks: The interest in this case centers about the small cause for the severe symptoms, and the ease with which the condition could have been mistaken for a confined maxillary empyema, especially since the previous attack might readily have been considered an acute empyema with spontaneous recovery.

At first it was reasonably certain that there was a confined suppuration of the antrum, the picture presented being almost typical of such a condition, particularly in view of the history of the extraction of the teeth twelve years before, which seemed to eliminate all probability of a dental origin for the extensive swelling.

On account of the great disparity between the amount of pain and the swelling, the superficial character of the edema of the eyelids, and the absence of the pathologic lesions in the nose usually present in disease of the antrum, the obvious course was to search for an extra-antral source of the symptoms. When this unearthed as the offending object the insignificant portion of a tooth which had given no indication of trouble until the attack a year before, the feeling of the physician was not unlike that of the individual, who, on seeing a giraffe for the first time, exclaimed: "G'wan, there ain't no such animal!"

Case 2.—*History.*—Mr. F. N. B., aged 31, salesman, had had most of the diseases of childhood, including scarlet fever and diphtheria. Otherwise, he had been in good health until 1902, while serving in the Philippines, when he had an attack of asiatic cholera. Since then he has had recurring attacks of dysentery. In 1907 the patient had a toothache of throbbing character in the first molar of the left upper jaw. The tooth was filled and gave no further trouble until a year later. At this time he had an alveolar abscess of the same tooth, which was relieved by rupture. Later, half of the tooth broke off and the filling came out. It remained in this condition until July, 1911, when on biting some hard substance the remaining portion crumbled away. A dentist attempted to extract the roots next day, but was unable to do so, except in a number of pieces, a small piece being removed by the patient with a toothpick a week later. The left side of his face became swollen and painful immediately, and by the next day the swelling was very marked and the pain quite severe. The gum was also swollen, hot and tender. The pain lasted about ten days and the swelling three weeks, during which time there was deafness in the left ear. Following the deafness the patient experienced a roaring sound in his ear for a time and finally complete return to normal. About ten days after the swelling started he began to notice a very bad taste in his mouth and foul odor. These gradually increased in severity, the odor becoming noticeable to his family and friends. Some time in September the patient began to have a considerable discharge from the left side of his nose, very much worse on rising in the morning, which he attributed to a cold and, therefore, disregarded.

He had been examined on two occasions by the dentist, but no communication had been found between the tooth-socket and antrum. The first evidence the patient had of such an opening was when blowing forcibly through the stem of his pipe air seemed to come through his nose by way of the tooth-socket, this being confirmed on November 27 by the fact that while using a mouth-wash with some pressure the fluid escaped through his nose. On account of the above condition and an increasing distress due to the odor and taste, the patient sought relief Dec. 1, 1911.

Examination.—The second bicuspid and first molar teeth of the left superior maxilla were absent. In the place of the latter there was an elliptical opening in the alveolar process about ½ inch long by 3-16 inch wide filled with tough granulations, which were bathed in pus. A probe passed into this opening led into the antrum and its withdrawal was followed by a quantity of foul-smelling pus. Pus also flowed freely on separating the granulations. No exposed bone could be discovered on careful probing.

* Read before the Medical Society of the City and County of Denver, Feb. 20, 1912.

Nasal Examination: Small amount of pus in the middle meatus. Mucous membrane normal except for some swelling around a large accessory ostium maxillare. Nasal septum markedly deflected to the right.

Bacteriologic Report: The predominating organism was an encapsulated diplococcus (morphology not determined) with a few streptococci.

Treatment and Course.—On December 4 the granulations from the sinus leading into the antrum were gently curretted, cauterized with fused crystals of nitrate of silver, and the cavity thoroughly irrigated with hot saturated solution of boric acid, dried, and light gauze drain inserted. Irrigations and packing were repeated daily, causing a decrease in the quantity of discharge.

On December 13, when, after irrigation, the sinus leading to the antrum was inspected by the aid of a rhinoscopic mirror, there was revealed what appeared to be a foreign substance lying on the outer edge of its upper or antral opening. This proved to be a portion of the root of a tooth about ¼ inch long, and after its removal the cavity remained perfectly dry and free from odor. There now only remained the question of the closure of the alveolar opening.

Remarks: Disease of the upper teeth, generally the second bicuspid or first molar, is found in a large proportion of all cases of inflammation of the maxillary antrum as the etiologic factor. The proportion is stated to be as high as 70 per cent. By far the greater number of these are caused by abscess of the root, and it is frequently difficult to find this source of infection in the presence of a tooth otherwise healthy in appearance. In the case reported, however, there was no evidence of an abscess except at a period too remote to have any etiologic significance. It is, therefore, fair to presume that this infection followed, or was coincident with, the extraction of the tooth. It is also evident that the portion of the root was forced into the antrum at the same time. The swelling of the face, immediately succeeding the efforts at extraction, was undoubtedly due to injury and infection of the gum, as it followed the operation too quickly to be in any way related to the infection of the antrum. It is probable that the lining mucous membrane of the antrum was pushed up ahead of the part of the root found later, and, acting as a foreign body, caused the formation of a localized abscess, which later penetrated into the general antral cavity. This would account for the length of time elapsing before the appearance of the nasal discharge and the detection of the opening into the antrum.

The treatment presented a choice between the conservative plan of irrigation and drainage, or the radical one of operation through the canine fossa. The guiding factors in the selection of the former method were, first, the short duration of the disease, viz. about five months; second, the absence of all evidence suggesting an involvement of the bone; third, the fact that curretting away the granulation resulted in a free opening for drainage in the most dependent part of the cavity; fourth, the presence of a large accessory ostium by which the fluid could drain into the nose, and through which the cannula could be inserted for irrigation; and as a fifth reason might be mentioned, a leaning toward conservatism in the treatment of these cases. The course pursued was completely justified by the results attained.

310 Mack Building.

A SYSTEM OF ELECTRIC WIRING FOR USING DIRECT STREET CURRENT IN LABORATORIES.*

D. E. JACKSON, PH.D., ST. LOUIS

Every laboratory in which experimental work in pharmacology or physiology is carried on has to solve the problem of electrical supply. This is a matter which often causes great annoyance and much waste of time. Dry cells, which constitute the commonest source of electricity, at least for student experiments, are very unsatisfactory in many ways. They are expensive, they run down easily and rapidly when in use, they supply only a limited amount of current and are cumbersome and unwieldy to manipulate. The greatest source of trouble with the dry cell is, however, its unreliability. Often one is compelled to spend much time during a laboratory period in trying to get an induction coil or other piece of apparatus to

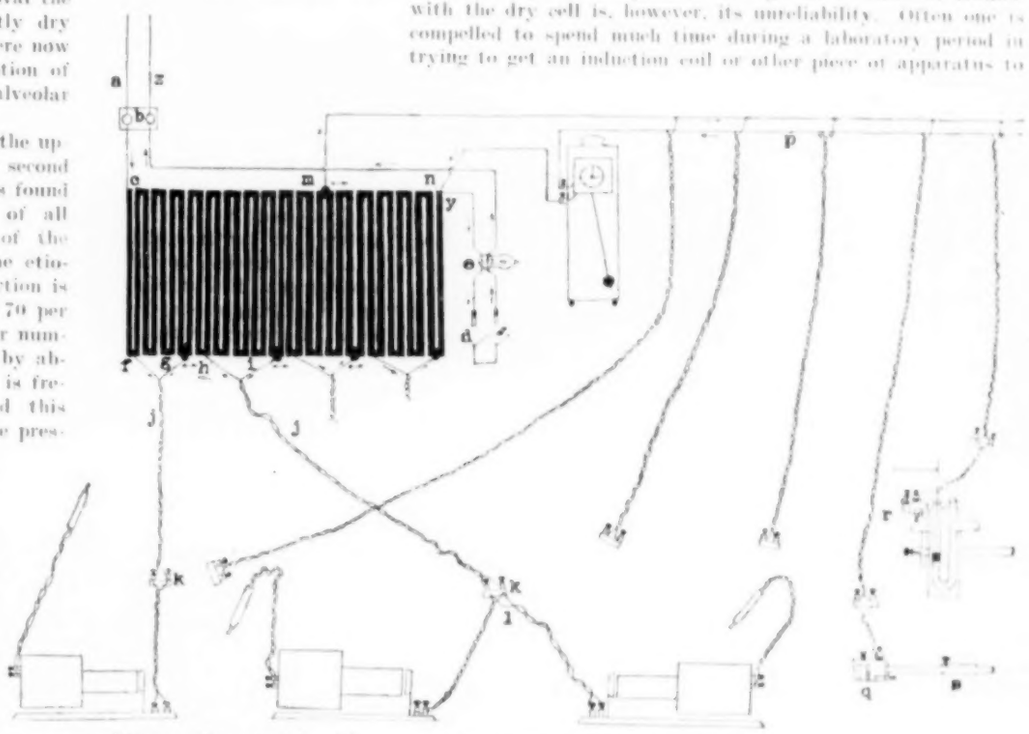


Diagram of an electric wiring system for pharmacologic and physiologic laboratories.

work when one cannot determine whether the difficulty is with the machine or with the dry cells. A thoroughly reliable source of electricity will surely do much toward alleviating such conditions. It was in the hope of obtaining some relief in this direction that the system described below was originally installed.[1] This system is not new by any means; in fact, some phases of it have been in use for a great many years in physical laboratories and perhaps, in some instances, in other experimental laboratories. It seems, however, that in most cases pharmacologic and physiologic laboratories have made but little use of this source of electricity. I have tried this general plan for four years under varying conditions, and I have found that with a little care and attention the system is thoroughly satisfactory and reliable. A direct current of 110 volts is best suited for this scheme.

The apparatus consists essentially of an extensive resistance frame made of thin tinned iron strips placed in series with the main current from the street circuit and having an incan-

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* From the Department of Pharmacology, Washington University Medical School, St. Louis.

1. The general plan of this system was worked out some years ago and installed in the Department of Physiology and Pharmacology at Indiana University by Prof. W. J. Moenkhaus and myself. I have since made a number of improvements and alterations, mainly in the direction of increased safety and convenience.

descent lamp in parallel with the main wires. Double removal 10-ampere fuse-plugs should also be placed in series with the main wires. From varying points along the resistance frame double wires are attached and led off to the different tables in the laboratory. At the resistance frame one of these wires is soldered tightly to the thin strips, but the other wire is fastened to a small, sliding spring contact-maker, by the adjustment of which the amount of current passing out to each laboratory table can be regulated.

A time circuit may also be taken off from the resistance frame. A contact-clock beating one, two, five or ten seconds or any other desired interval of time is placed in series with this circuit. Double wires connecting in parallel with the time circuit go to each table and serve to operate the ordinary signal magnets or signals marking the base line and attached to the mercury manometers.

The arrangement can best be described by reference to the accompanying diagram. The main street-current (110 volts direct) enters at *a* and leaves at *z*. At *b* double, 10-ampere fuse-plugs are inserted, one in the path of each wire. These plugs are used for safety, for occasionally one finds that the laboratory plumbing, etc., may be grounded. At *c* the current enters the resistance frame and at *y* it passes out of the frame and goes to the knife switch *d*. At *e* a small 4- or 8-candlepower incandescent lamp is placed in parallel with the main wires. The purpose of this lamp is to indicate at once to any one in the laboratory whether or not the current is on. This is a matter of great convenience, for a glance is sufficient to show instantly whether or not all fuse-plugs, connections, wiring, etc., on the main circuit are in good working condition. The resistance frame itself, which is diagrammatically represented between *c* and *y*, is really much greater in extent than the illustration shows. It is made of tinned iron strips about 5/16 inch wide and 1/100 inch thick. Each strip is about from 28 to 30 inches long. At the ends the strips are fastened to each other alternately by means of short pieces of the same metal which are soldered to the long strips. By this arrangement the current passes in a zigzag manner throughout the total length of all the metal strips, which thus serve as an electrical resistance placed in series with the main current. In the frame which I am using at present there are seven rows of these strips and each row contains about fifty strips. (The addition of one or two more rows of strips would have been an advantage to the apparatus.) The rows are connected together at alternate ends so that the main current passes through all of them in series. At the top and at the bottom (i. e., at the ends of the tin strips) of each row is a strip of wood fiber to which the row is fastened by means of small tacks. These strips of fiber are about ½ inch thick by 1½ inches wide, and at each end extend about 2 inches beyond the last strip of tinned iron. These 2-inch extensions are for the purpose of attachment to a simple wooden frame, which serves to hold the different rows of metal strips rigidly in place. At present I have the whole frame incased in a wooden box with hinged double doors which can be locked shut. Large ventilation holes are placed at the bottom and at the top of the box, and the walls inside are lined with asbestos sheeting. The fiber rods and asbestos sheeting are precautions against fire from short-circuiting within the frame, and they also serve to overcome any objections by fire insurance companies. The ventilation holes should be fully ample to always keep the metal strips well cooled down if the frame is placed in a closed box.

At *f* one half of an ordinary double lamp cord is soldered to the metal strips. The other half of the lamp cord wire is soldered to a simple spring contact-maker, *g*, so shaped that it can be moved along the edge of the row of metal strips, as indicated by the double arrow. This sliding back and forth allows the amount of current given off to each table to be easily regulated. With the slider placed on the fourth doublet of the metal strips (counting the place of attachment of the first wire as No. 1), as shown at *f*, *g*, in the diagram, the amount of current led off will be a little more than 1 volt and about 6 amperes. (The proportional amount of this current, however, which will be used by the induction coil will depend on the length and resistance of the wires leading from the resistance frame to the inductorium.) At *h*, *i*, etc., similar sets of wires are led off for other tables as may be desired.

The double wires *j* pass directly to the tables, one double wire for each. Formerly I had these wires placed along in grooves on the floor, but at present I have them attached to the ceiling and the terminal parts hang down to the respective tables. I have found the latter arrangement more convenient and accessible. Short wooden blocks with binding-posts are attached to the ends of the wires *k* leading to the induction coils, etc. Two, or even three or four, induction coils may be operated from one drop wire, *l*.

At *m* a wire with a sliding contact is led off for the clock circuit. This circuit is completed by the wire coming back to the frame at *n*. In the course of this latter wire, the time clock is placed (in series). From the two main clock circuit wires (*o* and *p*) other wires (in parallel) are dropped from the ceiling down to the tables and are connected with the signal magnets (*q*) or with the baseline signals on the manometers (*r*). The attachments of the wires for the clock circuit to the metal frame are usually placed at a considerably greater distance apart than are those for the regular induction circuits. The ordinary Harvard Apparatus Company's signal magnets work very well when placed (in parallel) with the clock circuit. If the clock used is particularly delicate or expensive it may be safer to use a relay operated by a dry cell- or storage-battery in series with the clock, and then the relay can serve as an interrupter for the main time-circuit.

The metal frame as a whole (inclosed in a wooden case if desired) may be placed on a shelf high up on the wall and entirely out of the way.

A few possible sources for accidents should be carefully emphasized. If a student who draws a current from his induction coil from one end of the metal frame should short-circuit this current with the wires coming from the clock, then he may burn out a signal magnet, a fuse plug (at *b*), or the contact points in the clock. In order to avoid this all students should be carefully instructed always to have the drum paper securely placed around the drum before any (metal) writing-points of their recording apparatus are placed against the surface of the drum, for the writing-points (if metal) may short-circuit the two currents. I have had this occur once in four years. As a safeguard against part of this difficulty I have placed short wood-fiber tubes (*s*) on the rods of the signal magnets. This insulates the bases of the metal stands, etc., which otherwise might, in rare instances, cause trouble. The signals on the manometers are usually completely insulated from the metal stands by means of the wooden board of the manometer to which the adjustable signal is attached.

With the system as here described I have been able to furnish current sufficient for a class of thirty six students. I presume more could have been provided for if it had been necessary. The current which flows through the resistance frame amounts to about 8 amperes or 880 watts (110 volt current). At the present price of current per kilowatt-hour the cost of operating the system amounts to about 5 or 6 cents per hour.

1806 Locust Street.

Epinephrin in Treatment of Cholera.—Dr. Naamé of Tunis reports twenty cases of cholera in which he applied treatment on the assumption that the principal symptoms in the disease are the result of toxic insufficiency of the adrenals. He aimed to supply the patients with the missing secretion of the adrenals, the lack of which was causing the chilliness and collapse, vomiting and diarrhea. He injected epinephrin into a vein or subcutaneously; all his twenty patients recovered. He supplemented this organotherapy with injections of salt or sugar solutions. In presenting Naamé's report to the Société médicale des hôpitaux de Paris, E. Sergent states that he has been arguing for ten years to prove that the symptoms of weakness, collapse and syncope in the course of infectious diseases and intoxications are due to acute arrested or perverted adrenal functioning, and Naamé's experiences seem to sustain this view.

A SLIDE-DRYING ATTACHMENT FOR CENTRIFUGES AND AN ALUMINUM STAINING DISH

WILLIAM KRAUSS, M.D., MEMPHIS, TENN.

This attachment was devised about six years ago and has been used with satisfaction ever since. An improvement made later by the manufacturers made introduction and removal of slides rather difficult. Recently, I have suggested a change which has been found so satisfactory that I deem a description of it desirable.

The "head" can be used interchangeably with the ordinary urine tube head. It is made of aluminum, grooved for the slide, the ends being turned back to afford distal lateral support. In the center there is a nickel-plated brass block, notched to receive the other end of the slide. The head holds two slides of standard size. Its utility is obvious. The rotation affords both fanning and centrifugal force, drying smears rapidly. For laboratories where much work is done, a separate hand centrifuge is advised, the head remaining permanently attached. Six to eight turns of the handle will dry any smear, even in damp weather. It can be readily attached to any toy motor.

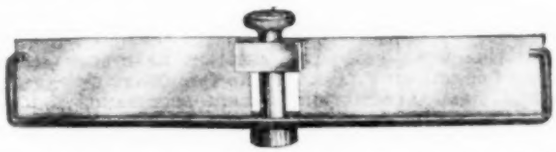


Fig. 1.—Slide-drying attachment for centrifuges, as now made by the Bausch and Lomb Optical Company, Rochester, N. Y.

The dish shown in Figure 2 is of pressed aluminum, 9 cm. square and 1 cm. deep, with parallel ridges pressed up from the bottom to afford support for three slides, so that, with the smear side underneath, 5 c.c. of stain will amply cover the preparation. The deposit of precipitating stains falls away from the slide. It is especially desirable for hot staining (for which purpose it is placed on a "simplex" "3-heat" electric disk), as there is no danger of breakage from the

Fig. 2.—An aluminum staining dish.

heat, and no crusting of the smear from evaporation of the stain. For staining by the drop method, the slide is placed on the ridges, smear side up. In either case, when the staining is completed, the whole dish can be placed under the tap, thus preventing the stain from getting on the fingers. Its advantages over glass are apparent. It stands heating and chilling, and is practically unbreakable. After washing, the residue of the stain is easily removed by carbonization on a hot plate. When being dried it must be supported on a level surface to preserve its shape.

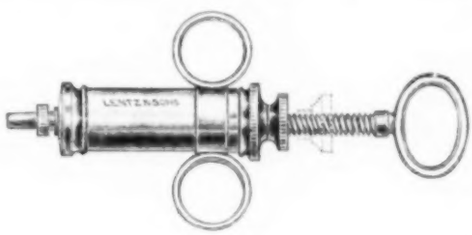
A Merry Heart Doeth Good Like a Medicine.—"Many a patient has lost his life for the lack of tact of physician or relatives. A patient ought to be benefited by a visit from a physician, even without medicine. A physician ought to be so cheerful, buoyant, exuberant with life that his very presence would cheer the patient, give hope and encouragement. A gloomy, sad-faced, moody, tactless physician is a poor health restorer. Only those who are happy and cheerful should minister to the unfortunate sick. The personality of the physician has a great deal to do with his success and with the chances of his patients."—O. S. Marden.

PIPETTE FILLER

LOUIS WEBER, M.D., LOS ANGELES

This instrument for filling the pipette of the Thoma-Zeiss hemocytometer consists of a syringe barrel with threaded piston-rod, with which, by a slight turn, the blood and diluting fluid can be drawn with accuracy to the mark, and, by a turn in opposite direction, the diluted blood can be expelled in a drop of any size.

In the stationary top there is an extra top (in which the threaded piston-rod screws) which can quickly, by a few turns, be unscrewed (from stationary top) so that the instru-



ment can be used as a syringe with which to cleanse the pipette. The rubber tube connecting the pipette with the syringe tip should not be longer than 2 or 3 inches, so that the instrument with attached pipette can be conveniently held in the left hand while the piston-rod is operated with the right. With a little practice this instrument can be operated with ease and the fluid drawn into the pipette with more accuracy than by suction with the mouth, and certainly it is not so repulsive as the latter, which, to say the least, is more or less obnoxious to the patient.

4000 South Figueroa Street.

ACUTE ARTICULAR RHEUMATISM TREATED BY THE RECTAL ADMINISTRATION OF SODIUM SALICYLATE*

L. G. HEYN, A.B., M.D., CINCINNATI

Junior Staff Physician to the Cincinnati Hospital

This report aims to call attention to a therapeutic measure, which has perhaps not received the consideration which it apparently deserves. Sodium salicylate may be justly designated as a specific in acute rheumatism. We know that the salicylic acid group of substances is bactericidal, and in rheumatism is probably etiotropic, i. e., acting on the cause of the disease. If we consider these facts, it would seem advisable to administer the largest dose possible early, as in the serum therapy of diphtheria. Heretofore, we have been satisfied in most cases with results obtained by the administration of the drug by mouth. But certain cases are refractory and it is possible that a delay in the cure of the infection increases the liability to the unfortunate cardiac complications. In many cases the stomach does not tolerate this drug, owing perhaps to the quantity of irritating salicylic acid set free; in these cases the neutral esters of salicylic acid—salol, salipyrin and aspirin—have been used, which compounds are not acted on until split up by the intestinal ferments. These drugs have not been found so efficient as sodium salicylate.

The report of cases to be cited, moreover, seems to indicate that we are less apt to fail in our therapy by the administration of sodium salicylate by rectum. Large doses of this drug are tolerated when given by this method, preferably if administered with starch and a few drops of the tincture of opium. The rectal administration is to be preceded by a cleansing enema of plain water, and two to four drams of sodium salicylate are then incorporated in an enema of 6 ounces of starch water and five to ten drops of opium tincture, which is readily retained. In some cases one injection has been sufficient to produce entire cessation of all symptoms.

* Read before the Clinical Society of the Cincinnati Hospital, Feb. 22, 1912.

Other cases seem to require a continuation of the treatment, which apparently can be carried out daily if necessary. In this procedure, as in all salicylate therapy, daily administration of the drug must be carried out until well into the defervescence of the attack. A too early cessation of the treatment permits a relapse of symptoms. The following typical cases may be reported, in brief, from the East Medical Service in the Cincinnati Hospital.

CASE 1.—*Patient.*—H. B., a man aged 40, admitted alcoholic excess, syphilis and gonorrhea and had had frequent attacks of sore throat. Two weeks before admission to the hospital on Jan. 17, 1911, patient suffered pain in both hips and was subsequently affected in both knees. On admission both knees were red and swollen, and there was residual stiffness of both hip-joints. Temperature was 102.4, pulse 108. A soft systolic murmur was heard at the apex, transmitted to the axilla.

Treatment and Result.—The patient was given sodium salicylate, 15 grains, by mouth every three hours, continuously, over a period of several weeks. There was, however, only slight effect on the temperature and the joint symptoms persisted for two months, involving also both elbows, shoulders, wrists and small joints of both hands. Sodium salicylate was discontinued and the wine of colchicum and potassium iodid in gram doses administered for several days. There was no improvement, however, and the patient was compelled to remain in bed during the entire time. On March 17, 2 drams of synthetic sodium salicylate were given, by rectum, with the effect that the temperature fell to normal within twenty-four hours. The joint-symptoms also subsided, but there were twinges of pain recurring which required the daily repetition of the enema, from which medication the patient had no untoward symptoms. He was not required to remain in bed after the second enema of sodium salicylate, and considering the refractory character of the case for two months previous to this mode of treatment, the results must be considered excellent.

CASE 2.—*Patient.*—H. S., a laborer, aged 58; had had an attack of rheumatism three years previously. The present attack began ten days before examination with pain and swelling in the right knee and right wrist. At the time of examination the left wrist and left knee were involved, the latter very much swollen with much collateral edema in the entire limb. Temperature was 101; pulse 98, with marked arhythmia in the heart's action, but no murmur. The rest of the physical examination showed nothing abnormal. Diagnosis was acute articular rheumatism of severe type, and arhythmia.

Treatment and Result.—An enema containing 120 grains sodium salicylate and 10 drops laudanum was given, preceded by a cleansing enema. The following twenty-four hours the temperature showed an average lower range of 1°; the knee was much improved but the pain in the wrist, though relieved, still persisted. The case required three enemas, each containing 120 grains sodium salicylate, on successive days. Complete recovery from the rheumatism resulted, the heart condition remaining unaffected by the medication.

CASE 3.—*Patient.*—E. V., aged 34, was admitted March 3, 1911, with a history of rheumatism three years previously. The present attack had persisted more or less continuously for one month. During that time the left shoulder, the left elbow and ankles and the small joints of both hands were successively involved. When seen on admission both ankles and several finger-joints were moderately swollen and red. Temperature was 100.8; pulse 92. The further details of the case had no bearing on the condition, and the physical examination was otherwise normal.

Treatment and Result.—The patient was given one enema containing 180 grains sodium salicylate, which relieved all symptoms and the temperature dropped to normal within thirty-six hours. The patient insisted on leaving the hospital within seventy-two hours, having no symptoms at the time of discharge.

CASE 4.—*Patient.*—J. T., a man aged 35, was admitted March 31, 1911. Previous history had no bearing on present condition. Two weeks before admission to the hospital, pain began in the right knee; later the left wrist was involved, being swollen and red and very tender when patient was first seen in the ward. The temperature reached 102.1 on the first day of admission. The patient was given one enema of 120 grains sodium salicylate with the result that there was complete subsidence of the swelling and pain in the joint, and of the temperature within twenty-four hours, the condition remaining normal without further medication.

This procedure has been resorted to in twenty-two cases, some five of which were not typical instances of acute rheumatic fever, but the therapeutic test was nevertheless applied. No unfortunate results happened in any instance, though frequently the dosage reached 240 grains daily. One case only was intolerant, owing to a previous irritability of the rectum. All typical cases were more or less satisfactorily benefited, and these results obtained with the rectal administration of sodium salicylate should warrant its use, not only in cases in which the stomach is intolerant, but, where possible, as a routine measure.

22 West Seventh Street.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

FORMICIN—Formaldehyde-acetamide.—Formicin is formaldehyde-acetamide, $CH_3C_2O.NH.CH_2OH = C_3H_7O_2N$, a molecular compound of formaldehyde and acetamide.

Formicin is a slightly yellowish, thick, syrupy liquid, having a faint, formaldehyde-like odor and a slightly acid, bitter state.

The specific gravity of Formicin should be between 1.14 and 1.18 at 20° C.

Formicin is soluble in water, alcohol, chloroform and glycerin; it is nearly insoluble in ether.

An aqueous solution of formicin (1 to 10) has an acid reaction on litmus.

At 115° C. (239° F.) to 120° C. (248° F.) formicin dissociates.

If 1 Cc. of an aqueous solution of formicin (1 to 10) be mixed with 1 Cc. of a mixture composed of equal volumes of stronger ammonia water, potassium hydroxide test solution and silver nitrate test solution, no immediate darkening should take place; but if the mixture be allowed to stand for some time, or be warmed, darkening occurs, due to the separation of metallic silver.

If an aqueous solution of formicin (1 to 10) be mixed with a 2 per cent. aqueous solution of aniline no immediate turbidity should appear.

Actions and Uses.—Solutions of formicin liberate formaldehyde gradually at body temperature, and thus exert an antiseptic action. It is said to be non-toxic and 5 per cent. solutions are said to produce but little irritation.

Dosage.—1 to 5 per cent. solutions are employed as injections into tuberculous and non-tuberculous joints, tissues and abscesses; for bladder irrigation in chronic cystitis 2 per cent. solutions are used.; 5 per cent. alcoholic solutions have also been suggested for the disinfection of the skin and hands.

Manufactured by Kalle & Co., A. G., Biebrich on the Rhine, Germany (Kalle & Co., New York). German patent No. 164,610. No U. S. patent or trademark.

IODO-CASEIN.—Casein-Iodine.—Iodo-casein is a compound of iodine with milk casein, containing about 18 per cent. of iodine in organic combination.

It is prepared by treating a solution of casein in sodium carbonate with a solution of iodine and precipitating with acetic acid.

Iodo-casein is a yellowish-brown powder, almost odorless and tasteless, insoluble in water or acid solutions. It is partially dissolved and decomposed by alkalies.

Actions and Uses.—It is said to undergo practically no change in the stomach, but to be quickly digested and absorbed in the form of soluble iodides, in the intestines. It is claimed that it may be used to advantage as a substitute for the inorganic iodides, as it is said to be less disturbing in its effect on the digestive organs. It is claimed to be excreted more slowly in the beginning than potassium iodide, but the last traces of it are said to be excreted more promptly.

Dosage.—0.3 to 1.3 gm. (5 to 20 grains) as indicated.

Manufactured by H. K. Mulford Co., Philadelphia. No U. S. patents or trademarks.

Iodo-Casein Tablets, 2 1/2 grains.—Each tablet contains iodo-casein 0.15 Gm. (2½ grains).

Iodo-Casein Tablets, 5 grains.—Each tablet contains iodo-casein 0.3 Gm. (5 grains).

Therapeutics

PROPHYLAXIS IN TYPHOID

Prophylactic measures against typhoid may be applied to the individual or to his excreta. The protection of the individual against typhoid infection by treatment of the individual organism is to be secured chiefly by the use of typhoid vaccines. This method has now become a recognized procedure for large classes of the community, such as the army and navy, schools, the inmates of public institutions, etc. It ought to be applied in an increasing degree to persons who wish to travel in infected localities, etc. It will also be likely to be of great value in the treatment of convalescents from typhoid bacilli if it seems evident that they are in danger of relapse. It is a proper treatment to apply to chronic bacillus-carriers who are continually endangering their environment by the excretion of bacilli and who, it has been shown, are liable to reinfect themselves so as to fall victims at last to the parasites which they may have harbored for many years.

The technic of this method has already been described (Phalen, J. M.: THE JOURNAL, Jan. 6, 1912, p. 9).

The protection of the community against typhoid infection is a part of the sanitary functions of the public health authorities. But since the infection in every case starts from an individual case of typhoid fever from which it may be spread in various ways, the primary responsibility for the spread of the disease rests in great measure with the physician in charge of the case. It is incumbent on him to see that no avenue by which the bacilli can escape into the external world is left unguarded. All germs excreted by the patient should be at once thoroughly destroyed. For this purpose no half measures should be tolerated. Disinfectants (true germicides, not antiseptics) should be employed and in strength sufficient to destroy with certainty the germs in the material on which they act. The physician should not rely on articles the disinfectant power of which has not been satisfactorily demonstrated. There is no occasion to use patented or secret articles. Efficient germicides are cheap, non-proprietary, and thoroughly well known. They should be provided in sufficient quantity so that they will be used freely enough to accomplish their purpose. It should be thoroughly understood that in this disease the disinfection should be carried on day by day throughout the course of the disease. Disinfection after the termination of the disease is of minor importance. Disinfection of the air is also relatively unimportant. The germs are borne by the solid and liquid excretions and the hands, clothing and food soiled with them. Direct contagion, although possible, is rare.

From the standpoint of prophylaxis the question naturally narrows down to disinfection of the urine, stools, sputum and of objects which may accidentally be contaminated by these excretions.

To disinfect the urine, the best solutions are, phenol (carbolic acid) 1 to 20, in an amount equal to that of the urine or bichlorid of mercury 1 to 1,000 in an amount one-fifteenth that of the fluid to be sterilized. These mixtures with the urine should stand at least two hours.

In case there is demonstrable bacilluria hexamethylenamin may be given to cause disappearance of the bacilli from the urine, but under no circumstances should its administration permit the disinfection of the urine to be neglected.

To disinfect stools, phenol is the most useful. It is cheap, and efficient if used in strong solutions. The stool should be mixed with about twice its volume of 1-to-20 phenol solution and allowed to stand for several hours.

Inasmuch as the water used in bathing is liable to be soiled by urine or feces, it is advisable to extend the disinfection to this material also. The disinfection of the bath-water after use is best accomplished, according to E. Babucke (Babucke, E.: *Centralbl. f. Bakteriol.*, 1900, xxvii, 800), by the use of chlorid of lime: 250 gm. (one-half pound) of chlorid of lime will render the ordinary bath of 200 liters sterile in one-half hour.

In cases in which sponging is practiced the amount of water used would be small and would require correspondingly a small amount of the disinfectant.

If there be any expectoration, the sputum should receive the same care as in tuberculosis. It is best to collect it in small cloths, which may be burned.

All the linen leaving the patient's bed or person should be soaked for two hours in 1-to-20 phenol solution and then sent to the laundry where it should be boiled. It is recommended to boil the dishes from which the patient has eaten before they are taken from the room. If this precaution is impracticable they should at least be treated in some other way, as by wrapping in paper so that they cannot convey infection. They should afterward be boiled or washed separately from the other dishes.

It is also recommended that the nurse should wear a rubber apron when bathing or handling otherwise a typhoid patient and should also wear rubber gloves or else wash the hands thoroughly in a 1 to 1,000 bichlorid solution after she has finished or as recommended in THE JOURNAL (March 16, 1912, p. 805), she should wash thoroughly in soap and water, followed by 70 per cent. alcohol.

While it may be impracticable sometimes to carry out these precautions in their entirety, they should be regarded as the ideal to which the intelligent nurse or attendant will approach as closely as possible.

Great care should be taken to prevent access of flies to typhoid excreta and to food supplies. The room of the typhoid patient should be kept thoroughly screened in fly season. The nurse or other attendants should be taught to regard every specimen of urine as a pure culture of typhoid bacilli and should carefully avoid the spilling or scattering of drops of urine.

The danger from contamination with the urine should be impressed on the convalescent patient, who should be encouraged to continue the use of hexamethylenamin and to report to the physician for examination of the excreta until it is satisfactorily shown that no more typhoid bacilli are being passed by the patient, either in the urine or feces.

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CHEESE—A NEGLECTED NUTRIENT

One of the most common articles of diet is cheese, and yet its value is little appreciated by the general public. One cannot say, in fairness, that cheese has not won favor in this country; for an article that is found in some quantity or other in almost every American home and the yearly output of which is considerably over 300,000,000 pounds in the United States, with a value of nearly $29,000,000, cannot be regarded as entirely unpopular.[1] Despite these enormous figures, there is a prevalent current belief that cheese is prone to produce physiologic disturbances and that, as the expression goes, it is "hard to digest."

Cheese enters into the dietary in two quite different ways. Some of the types are used almost entirely as food adjuvants, rather than for their nutritive value. This applies especially to the highly flavored varieties which are eaten in small quantities at a time and are prized because they tend to make the diet palatable and attractive. They likewise belong among the more expensive kinds, so that here, as so often in dietetic matters, we are disposed to pay for what pleases the palate rather than what nourishes the flesh. In the second place, cheese is also used in larger amounts as a real nutrient, supplying a liberal share of the energy value of the diet. Such applications are especially made of what are known in this country as American cheeses —those mild-flavored sorts which serve as staple articles of diet rather than as appetizers. About three-fourths of the cheese made in the United States is of this type —so-called American cream cheese or English cheddar cheese—the remainder being modifications of foreign brands like the Neufchâtel, Camembert and others.

The nutrition experts of the United States Department of Agriculture have been investigating the case of the American public versus cheese. The facts and findings are essentially as follows: Cheese of various types, eaten raw or carefully cooked, compares favorably with other foods in thoroughness of digestion in healthy man. It does not cause constipation or induce other physiologic upsets, even when eaten in abundance. Of course the occasional alimentary vagaries of a misconstructed Welsh rabbit must not be charged to the harmless satisfaction stowed away in a liberal portion of bland cream cheese; any more than a well-made loaf of bread loses nutritive prestige in view of the faults of half-baked dough, that emblem of American kitchen shortcomings. Let us not attribute the results of poor cooking to assumed indigestibility in food. Cheese is more than readily digestible; it is highly nutritious, comparing in this respect with other rich protein-fat combinations like meat, fish and eggs; and above this, cheese is an economical food, competing easily with the foregoing from the standpoint of cost and nutritive efficiency.

If the causes for the familiar indifference to cheese as a more central feature of the diet are sought, they probably lie in part in the continued popularity of the more expensive meat in this country and in the fact that our housekeepers lack the culinary experience which would bring cheese into a more prominent rôle on the bill of fare. There are, moreover, extremists who assume specific uses of cheese as they do of other dietary articles. The latest *Farmers' Bulletin* offers this sane comment:

"Some persons seem to believe that cheese or fish or other food is the ideal food for some particular circumstance and that there is a special food or diet suited to each kind of work and to every circumstance of our daily life, and that it would be a great advantage if we could regulate our daily fare with the accuracy a chemist uses in making an experiment. Work, recreation, the amount of clothing we wear, and other details of our daily life are not so regulated, and it is the belief of those who have studied the subject that the best interests of persons living under normal conditions are served if the ideal be rather the regulation of the diet along general lines in accordance with good sense, the teachings of experience, economy, and the available knowledge gained from a scientific study of the subject, due care being taken that the different staple foodstuffs are so combined that all the needs of the body are provided for, excessive waste is prevented, and that both undernourishment and excess or overeating are avoided."

1. These and other data referred to are taken from Farmers' Bulletin 487. Langworthy, C. F., and Hunt, Caroline L.: Cheese and Its Economical Uses in the Diet, U. S. Dept. Agric., Washington, 1912.

THE ROYAL SOCIETY

The Royal Society of London for Improving Natural Knowledge — usually called simply the Royal Society — which is to celebrate its two hundred and fiftieth anniversary in July next, was founded by Charles II; and all his male successors on the British throne have become members, while Queen Anne and Queen Victoria were its patrons. The present king, indeed, takes a very active interest in its deliberations. And it is a graceful thing that in the coming celebration there will be representatives of the French Academy, which Cardinal Richelieu founded only a few years before the Royal Society. Several great Americans were made fellows of the English institution —Benjamin Franklin, Benjamin

Thompson (afterward Count Rumford), Alexander Agassiz, Simon Newcomb and Dr. S. Weir Mitchell.

The Royal Society seems to have been originated not by an Englishman, but by a German — Theodore Haak, who, coming from the Rhine Palatinate, began, in 1645, the organization of weekly meetings "of divers worthy persons inquisitive in natural-philosophy and other parts of human learning and particularly of what has been called the new philosophy, or experimental philosophy." And it was another German, Henry Oldenberg, who was the first secretary. Three years later a sister organization was founded at Oxford University — the Philosophical Society of Oxford. A close and mutual intercourse was maintained, until finally their activities were joined in the metropolis where, in 1660, under the chairmanship of Dr. Wilkins, a corporation was formed for promoting "physico-mathematical, experimental learning and philosophy." The membership was limited to fifty-five, fellows of the Royal College of Physicians, as also the professors of mathematics, physics and natural philosophy of Oxford and Cambridge being admissible as associate or supernumerary members. Sir Robert Moray was the first president. The initial meetings of the organized Royal Society were held in Gresham College in London; but after the great fire Henry Howard, sixth Duke of Norfolk, invited the society to establish itself under his roof at Arundel House, presenting it at the same time with a superb library of scientific works. Many of these books and manuscripts were sold a century ago to the British Museum, where they are to-day known as the Arundel Collection.

In 1671 the Bishop of Salisbury proposed for membership Mr. Isaac Newton, professor of mathematics of the University of Cambridge; and precisely three decades later Newton became President and continued to hold the office until his death, a quarter-century later. The late Lord Lister was another president. Election to the Royal Society is to-day not easy; and there is no doubt much heart-burning in (or rather outside) the premises. The membership is still limited to fifty-five; and admission would be even more difficult than it is were it not that most of its members are advanced in years, fellowship meaning to them the crowning point of a career devoted to science. There are fifty honorary foreign members who have no power and are selected by the council from among men eminent in science abroad. The annual election of officers is held on the day of the society's spiritual patron, St. Andrew. It receives from the British government an annual grant of £25,000. A report on its considerable trust funds and its other sources of revenue is published annually. And these funds are expended for the public weal; every year many thousands of dollars are devoted to the promotion of scientific research, especially in defraying the cost of experimental work by scientists who personally lack the means. Moreover, through its long and most honorable existence, it has ever been the principal adviser of the state and of the crown in all matters of science. It is officially represented on the governing bodies of every kind of governmental and semi-public scientific and other educational institutions. There is practically no end to the matters concerning which the society's advice is sought, or concerning which the society of its own initiative counsels the state. Not the least noteworthy of its activities is that it keeps ever in touch with learned societies throughout the world.

It has the custody of the standard copies of the imperial standard yard and pound; it controls the national physical laboratory, an institution established by the government on the recommendation of the society; it superintends the work of the Kew and the Greenwich observatories; on its initiative, and by its advice the government inaugurated the geodetic survey in 1790. Other enterprises which have had the society's aid are the expedition of Captain Cook to observe the transit of Venus, and that great commander's circumnavigation of the globe; the various arctic expeditions under Ross, Parry, Franklin and Nares; the Challenger expedition; the international congresses on the question of a prime meridian, and of an international seismological investigation system; tidal observations, protection of buildings from lightning; tropical diseases; color-blindness; and much else impossible of enumeration.

Obviously the coming celebration will be an event of international interest and importance. We have no exact counterpart of this superb institution; would that we had!

THE ADRENAL CORTEX IN RELATION TO SEXUAL CHARACTERISTICS

When it was discovered that the adrenals elaborate an internal secretion of vital importance it seemed as if the mystery of the functions of these little organs had been solved. It was found very soon, however, that the adrenal medulla only is concerned in this secretion and that the cortex probably takes no part in the production of epinephrin. That the cortex and the medulla should differ in function is not strange when we consider the great differences in their cells, and especially, of course, the fact that developmentally the adrenals represent two distinct sets of organs which in the higher vertebrates have become fused anatomically.

The medulla of the adrenal is part of the so-called "chromaffin system," which develops in connection with the sympathetic and is of neuro-ectodermal origin. This system consists of widely scattered collections of chromophil cells, like those in the medulla; they are found as strands in the larger nerves of the sympathetic and as oval masses about the ganglia—the so-called paraganglia; especially large collections are found near the division of the aorta (Zuckerkandl's organ), and the uppermost masses constitute the carotid glands, while the lower group is the coccygeal gland. It appears to be generally accepted that all these different parts of the "chromaffin system" take part in the production of epinephrin, the

secretion of which at one time was ascribed wholly to the adrenal medulla.

Now, as to the origin of the adrenal cortex, there is difference of opinion. In the sharks it corresponds to a single organ, the interrenal organ, while the medulla here is represented by the suprarenal organs. Higher up in the scale occur, paired and unpaired, smaller and larger interrenal bodies, which are derived from the mesoblast and the cells of which are filled with lipoid material. In mammals and man the principal mass of the interrenal tissue is the adrenal cortex, small, scattered bodies of the same tissue, usually spoken of as misplaced adrenal fragments, being found in the region of the kidneys and adrenals, about the internal genital organs, and also in other parts of the abdomen. The tendency seems to be to regard these bodies as independent formations rather than as fragments split off from the principal organs.

Probably the most widely accepted view assigns to the adrenal cortex essentially the same origin as to the ovary and testicle, and accordingly it is not so surprising to find that there is a growing tendency to regard the adrenal cortex as in some way functionally concerned in sexual development. Evidence of this functional relation is seen in the small size of the adrenal cortex in defective development of the sexual organs; in its enlargement after castration; in the increase that occurs during pregnancy and after menstruation (but this increase appears to involve the medulla also); and especially in the hyperplasia observed in the forms of pseudohermaphroditism, in which the internal organs are female and the external male; but most of all in the peculiar changes in sexual characteristics that develop in connection with certain tumors of the adrenal cortex. The tumor in question is referred to usually as adrenal hypernephroma, and its structure reproduces largely that of the adrenal cortex; it is generally unilateral, often associated with metastasis, and seems to occur most frequently in female children. In children this tumor almost invariably is associated with a precocious growth of the body and of the sexual organs with overgrowth of hair and fat. There is a tendency to an increase of the male characteristics as shown by the occurrence of beard, absence of menstruation and hypertrophy of the clitoris. Usually there is increased pigment in the skin and mental dulness.

In a recent study of this tumor, Glynn[1] discusses seventeen cases in children, fourteen female, three male; in only one case were there no signs of precocious development. It seems that in adult females also the development of this tumor may be associated with the appearance of male characteristics, but when it occurs in women after the menopause and in adult men there are no sexual changes.

It is interesting to note that apparently the so-called hypernephromas of the kidney, the adrenal origin of which is now being denied by some on morphologic grounds, do not seem to influence growth or sexual character, which surely might be regarded as an indication against this development from adrenal remnants. Whether the tumor in the adrenal is the cause of the changes outlined, or *vice versa*, or whether both tumor and changes are the result of a common cause, cannot be answered at present. It would be interesting, indeed, to observe carefully what the effect of the removal of the tumor would be. In one case it seems that the hair fell off after the tumor was removed. At all events, there seems to be some kind of intimate connection between the adrenal cortex and sex characters, the full explanation of which it is left to future investigation and observation to furnish.

1. Glynn: Quart. Jour. Med., 1912, v, 157.

WHAT IS HUNGER?

Two hundred years ago John Mayow offered an answer to this ever-present problem. "If the stomach be quite empty of food," he wrote, "its internal membranes are, as is probable, pinched by the nitro-aërial particles, and hunger seems to arise from this."[1] It is not surprising that a sensation which is so familiar to every individual from personal experience should have been the subject of numerous and diverse theoretic explanations. Associated, as it ordinarily is, with a hidden recess of the body, hunger has inevitably been clothed with the mysterious and uncertain qualities which are attached to the interior of the organism. A careful analysis will at once bring out the fact that appetite and hunger are fundamentally distinct; for no one would describe the "dull ache or gnawing sensation referred to the lower mid-chest region and the epigastrium" as appetite. Hunger is evidently a demand for nutriment; whereas the pleasures of appetite may be enjoyed without the necessity of an attendant hunger.

In a recent lecture before the Harvey Society of New York City,[2] Professor Cannon, of the Harvard Medical School, subjected to a critical review the various theories which undertake to account for hunger and offered an explanation of the well-known phenomena. He discards the widely accepted view that hunger is "a general sensation with local reference." According to this it has been assumed that hunger arises from a general condition of the body, such as the disappearance of food substances from the blood. As a matter of fact the sensation of hunger is commonly said to disappear as time passes — which one would certainly not expect if it were a manifestation of a serious deficiency; furthermore, there is no evidence of marked changes in the blood when hunger appears, and it is difficult to reconcile the abrupt onset of the sensation with any assumed equally sudden alteration in the nutritive state of the body. Again, the well-known intermittent occurrence of

1. Mayow, John: Medicophysical Works, Alembic Club Reprints, No. 17, Chicago, 1908, p. 267.
2. Cannon and Washburn: An Explanation of Hunger, Am. Jour. Physiol., 1912, xxix, 441.

hunger is not readily interpreted in terms of metabolic phenomena. As Cannon says: "Such zigzag shifts of the general bodily state may not be impossible, but, from all that is known of the course of metabolism, they are highly improbable. The periodicity of hunger, therefore, is further evidence against the theory that the sensation has a general basis in the body."

Any tenable theory of hunger must account for its most conspicuous feature, viz., the reference of the feeling to the epigastric region. Hunger is not due to emptiness of the stomach, or to hydrochloric acid secreted into the empty organ, or to turgescence of the gastric glands. Cannon attributes it to contractions of stomach musculature. By an ingenious experimental method he was able to register simultaneously the movements of the stomach wall and the subject's impressions of hunger sensation. The contractions and sensation always occurred in unison. Both are abolished when food which satisfies the bodily need is taken into the stomach.

On Cannon's theory the absence of hunger in fever (when bodily material is actually being rapidly used) is explicable from the fact that infections with systemic involvements are accompanied by a total cessation of all movements of the alimentary canal.[3] The inordinate hunger of certain neurotics is likewise in accord with the well-known disturbances of the tonic innervation of the alimentary tract in such individuals. The sequence of events may best be described in the authors' words: "Hunger is normally the signal that the stomach is contracted for action; the unpleasantness of hunger leads to eating; eating starts gastric secretion, distends the contracted organ, initiates the movements of gastric digestion, and abolishes the sensation. Meanwhile pancreatic and intestinal juices, as well as bile, have been prepared in the duodenum to receive the oncoming chyme. The periodic activity of the alimentary canal in fasting, therefore, is not solely the source of the hunger pangs, but is at the same time an exhibition in the digestive organs of readiness for prompt attack on the food swallowed by the hungry individual."

MERITED HONOR

A week ago in the presence of the provost and trustees of the University of Pennsylvania there was unveiled a bronze medallion in honor of Dr. Crawford Williamson Long, a student of the class of 1839 of the medical school of the university. His alma mater thus worthily honored one of the distinguished medical discoverers of this country, whose name and place in our medical history is perhaps not as familiar as it should be. There seems no doubt now that just two years and eight months before Horace Wells and four years and six months before Morton made use of sulphuric ether in surgery, Dr. Long, then practicing in a small Georgia town, on March 30, 1842, removed painlessly a small glandular tumor from the neck of James W. Venable, his patient during the operation being under the anesthetic influence of ether. A second operation under the anesthetic was done in July of the same year, a third in September, 1843, and a fourth in January, 1845. Dr. Long made no attempt at the time to publish a report of his experiences, and it was not until 1849 that an account of his operations appeared, being called forth by a report of Morton's work.

Many, forgetting the debt which early American medicine owes to other southerners, may feel surprise that the first practical application of this anesthetic should have been made by an obscure surgeon in a remote corner of the south. Yet we owe to a southern surgeon, McDowell, the first ovariotomy; another southern physician invented an ice-making machine, because he wanted to cool his fever patients, while Sims and Emmet, who developed gynecology in America, were southerners. The celebration of this seventieth anniversary of the first operation done under an anesthetic in modern times will serve to remind us also of the part played by southerners in the medical history of the first half of the nineteenth century.

The celebration of such anniversaries and the erection of appropriate memorials will help us to appreciate how much our immediate forefathers in America accomplished for medicine and surgery and how much of genuine progress we owe to them. Younger members of the profession are inclined to forget this and to think of modern medical advance as practically all of foreign origin. If American contributions to the medical sciences, and above all, to medical and surgical practice, were wiped out, however, there would be many larger lacunae in present-day medicine than any but those familiar with the history of American medicine could appreciate.

Current Comment

HEALTH AND MARRIAGE

None knows better than the physician the tragedies caused by the marriage of the physically unfit. The necessity that both parties to the marriage contract should be mentally and physically sound has long been admitted, not only by the medical profession, but also by those who have made a study of sociologic problems. That the state should take action such as would prevent the mating of the unfit has long been recommended. Marriage, however, has a religious as well as a civil significance with many people. What more rational, therefore, than that the religious representatives should take official notice of an evil that so closely concerns both the church and the state? Within the last few days a well-known clergyman announced that in future he would wed no couple that failed to bring from a reputable physician clean bills of health. One might imagine that there would be no criticism of this stand from other representatives of religious organizations,

3. Cannon and Murphy: Physiologic Observations on Experimentally Produced Ileus, THE JOURNAL A. M. A., Sept. 7, 1907, p. 840

Nevertheless, newspaper interviews indicate that the advanced stand taken by the pastor in question did not receive anything approaching unanimous approval. One preacher in particular is quoted as waxing eloquent in the denunciation of what he was pleased to call "health certificate marriage." Said he: "If you would rob the holy marriage rite of its sanctity, if you would divest a sacred custom of its beauty and holiness, if you would make the union of two souls a commercial transaction, then establish a custom which will permit the physician and his science to stand between two hearts that are drawn to each other." At the risk of spoiling this perfervid utterance, we fain would take the liberty of paraphrasing it, thus: If you would rob the holy marriage rite of its present capacity of permitting the infection of your sisters and your daughters with loathsome diseases,..if you would divest a sacred custom of its potentiality for perpetuating epilepsy and idiocy, if you would make the union of two souls synonymous with the union of two clean bodies, then establish a custom which will permit science to stand as a faithful guardian of health and happiness over the two hearts that are drawn to each other!

TYPHOID A PREVENTABLE DISEASE

It is rather startling to be told that in 1909 there were more cases of typhoid in the United States, with a population not half so large as that of India, than there were cases of plague in India; and that there were four times as many cases of typhoid in the United States as cases of cholera in Russia during a period including the epidemic of 1910. These figures are taken from an article by McLaughlin[1] of the Marine-Hospital Service, who says that we consider with apprehension the countries in which cholera and plague occur frequently and call them pest-ridden countries, but do not consider the problem of typhoid fever in our own country with sufficient seriousness. He gives tables to show that within the registration area in the United States, in fifty cities having an aggregate population of over 20,000,000, the average typhoid death-rate for 1910 was 25 per hundred thousand inhabitants. In one city in that year it amounted to 86.7 per hundred thousand, and in several cities it amounted to 45 or more. In ten of the largest cities of northern Europe, comprising a population of 15,000,000, the average typhoid death-rate per hundred thousand of population during a period of ten years, from 1901 to 1910, was only 3.4, and in 1910 the rate had gone down to 2.5. It is considered in Europe that a death-rate of 13 to 15 per hundred thousand constitutes a rather serious reflection on the sanitary management or the water-supplies of such cities. And yet the figures are far below the average of the fifty cities in the United States above referred to, in which the death-rate was 25 per hundred thousand of population. Leaving out of account such causes of typhoid as infected food and milk, contact, carriers, etc., McLaughlin believes that this death-rate can be very materially reduced by filtering the water-supplies of our cities, which are too largely contaminated by sewage. Not only is this high death-rate from typhoid fever to be deplored on humanitarian grounds, but the occurrence of such a large number of cases represents an economic loss so great as to be almost incalculable, and our legislators and city authorities should feel the obligation to adopt more vigorous methods of preventing this enormous waste of human energy, earning capacity and human life.

1. McLaughlin: The Necessity for Safe Water-Supplies in the Control of Typhoid Fever, Pub. Health Rep., March 22, 1912.

"THE MILLS OF THE GODS"

The inner workings of the "men's specialists" offices are a closed book to the public and, from the nature of the case, usually must be. Of the mental torture and despair for which these vicious organizations are responsible, the half can never be told. Sordid, heartless, lacking in every element of humanity or common decency, the "men's specialist" sees in his patients nothing but disease-tortured victims to whom he can apply the thumbscrews of blackmail with slight risk of detection. Occasionally, a victim turns, and, for a too brief moment, the white light of publicity is thrown into the noisome pit of quackery and the slimy, crawling things that it harbors become visible. Such a case has recently occurred in Seattle, Wash. In the cities of the Pacific Coast there are a number of "men specialists" offices conducted by a syndicate. The "Dr. Taylor Company," which was exposed in The Journal some time ago,[1] was one of these organizations. After the California law went into effect requiring medical offices to be conducted in the name of the physician in charge, the "Dr. Taylor Company" had its various offices in other coast cities advertise under the names of whatever quacks happened to be employed. The renegade physician in charge of the Dr. Taylor Company's Seattle office was one W. T. Akey. A few days ago, one of Akey's patients, a miner and logger named Anderson, shot and killed both Akey and his assistant and then killed himself. Scores of receipts for money paid to Akey were found in Anderson's room; other receipts showed that Anderson had been passed from one of the syndicate offices to another, beginning in Nevada as long ago as March, 1910. After the commission of the crime, the police seized the books of the Seattle office, together with a card system used to keep track of the victims. Anderson, apparently, was considered a catch. The poor wretch had come to Seattle in October, 1911, at which time he deposited $900 in a bank. He began "treatment" October 31, and the harpies apparently kept after him so long as there was any money to be had. Anderson finally reached his last $10. This he withdrew from the bank, purchased a pistol and brought the long series of wrongs to a close by another, not more serious, but shorter and more sensational. Some day possibly it will be realized that evils such as those of the "men's specialist" type are of vital interest and of far-reaching consequence to the public. At present, the evil is in most instances allowed to flourish unhampered. When decent physicians direct attention to the iniquity, they are accused of acting in their own interests and encounter antagonism from that part of the daily press which, in

1. The Journal A. M. A., Jan. 29, 1910; reprinted in "Nostrums and Quackery."

return for a share in the blood-money of these "specialists," affords them the advertising facilities which enable the evil to exist. Some day, too, the public may awaken to the fact that laws governing the practice of medicine are for the protection of the public and not for the protection of the medical profession. At present, unfortunately, the various state medical practice acts are looked on by the public as a species of class legislation in the interest of the medical profession. It is for this reason that most attempts to strengthen these acts are met with rebuff. For this reason, too, the Dr. Akeys are permitted to ply their villainous trade and the poor deluded, pain-racked Andersons are allowed to be driven into the madness of despair. For every tragedy of this kind that is brought to the attention of the public there are a thousand, enacted in obscurity, of which the public never hears.

A GOOD EXAMPLE

Some time ago we called attention to the fact that the Los Angeles County Medical Society had presented to each of its members a copy of "Nostrums and Quackery." The same society has just purchased a sufficient number of copies of the 1912 edition of "New and Nonofficial Remedies" for similar distribution. If 10 per cent. of the county societies of the country would do as the Los Angeles society has done there would be a tremendous advance in the enlightenment of the public through "Nostrums and Quackery," and of the profession through "New and Nonofficial Remedies." While nearly ten thousand copies of the former have already been distributed, there ought to be a hundred thousand copies placed in the hands of the public in various ways; the profession could help in this immensely at a very slight expense. The 1912 edition of "New and Nonofficial Remedies," which is just out, ought to be in the hands of every physician who prescribes. Possibly we ought to make an exception as regards those physicians whose confidence in their own good judgment is equaled only by their child-like faith in the statements of proprietary manufacturers.

A NEW HEALTH BUREAU BILL INTRODUCED IN THE SENATE

Elsewhere[1] appears the text of Senator Smoot's bill "To Establish a Public Health Service and for Other Purposes"; it can be assumed that it is intended as a substitute for the Owen bill. Senator Smoot's bill is short and provides that the title of the bureau now known as the "United States Public Health and Marine-Hospital Service" shall be changed to "the United States Public Health Service"; that to it shall be added two new divisions, that of sanitary engineering and that of child hygiene. The bill would transfer the Division of Vital Statistics of the Bureau of the Census from the Department of Commerce and Labor to the United States Public Health Service. It also provides for an assistant secretary in the Treasury Department, to be known as the Assistant Secretary for Public Health, and to have supervision of the administration of the United States Public Health Service. A competent sanitary engineer is to be in charge of the Division of Sanitary Engineering. The usual provisions for applying all the present laws relating to the Public Health and Marine-Hospital Service to the proposed United States Public Health Service and for the financial administration of the service also appear in the bill. The chief points of difference between this bill and Senator Owen's measure are apparent. The Owen bill, in its present form, provides for an independent Bureau of Health, at the head of which would be a Commissioner of Health, appointed by the president and responsible to him alone. The Owen bill would transfer to the new bureau so much of the Bureau of Chemistry of the Department of Agriculture as is necessary to enforce and administer the Food and Drugs Act. It provides for three assistant commissioners of health who shall be the heads of the three main divisions of the bureau. It would transfer the United States Public Health and Marine-Hospital Service from the Treasury Department to the proposed Bureau of Health. It would also create divisions of child hygiene and sanitary engineering.

1. Department of Medical Economics, p. 1034.

THE AUTOMOBILE NUMBER

This is the sixth Automobile Number of THE JOURNAL. Various contributions on the subject appear on pages 1049 to 1080. Any who wish may omit these pages from their bound volumes, but we presume that few will care to leave them out, for the man who may not have more than a bystander's interest in automobiles today may decide a few months later that he needs one, and then he will wish to turn to the Automobile Number. The automobile is more than ever one of the helpful auxiliaries of the physician. The key to the names of the automobiles mentioned is a separate folder, which, as usual, will be sent to anyone on receipt of a stamped addressed envelope of ordinary size. Copies of this key have been sent to all who have contributed to this Automobile Number; they, therefore, will not have to write for them.

KNOCKS AND BOOSTS

The American Medical Association and its various activities — more especially THE JOURNAL — are the subject of frequent comment and criticism, and we have often wished that we could print some of the remarks — both bouquets and brickbats. It does not seem fitting to put them in the reading pages as they are ephemeral matter and the bound volumes are already large enough. A new department is therefore inaugurated in this issue, entitled "Knocks and Boosts." This and some other matter of merely transient interest will be found on the advertising pages which immediately follow the reading-matter. It is a pleasure to record some of the statements that will be found in "Knocks and Boosts," while concerning others one can only remember that it takes all sorts of people to make a world.

Medical News

ILLINOIS

Smallpox in Kewanee.—It is reported that a large number of cases of smallpox exist in Kewanee.

Personal.—Dr. Russell Broughton, Rockford, who has been seriously ill with pneumonia, is reported to be improving.——Dr. C. U. Collins was unanimously elected president of the Peoria Association of Commerce, March 21.——Dr. E. W. Cauldwell, Lemont, fell on an ice walk recently and sustained a severe sprain of the wrist.

Hospital for Oak Park.—The Western Suburban Hospital Association, whose membership is made up of physicians of Oak Park, Austin, River Forest, Elmhurst and other west suburban towns, has perfected plans for a new hospital to be erected this summer at Austin Ave. and Ontario St., Oak Park, to cost from $60,000 to $100,000.

The Harris Lectures.—Northwestern University announces the Norman W. Harris lectures for 1912, in the Annie May Swift Hall, April 15-20, by Dr. Milton J. Rosenau, professor of preventive medicine and hygiene in Harvard University. The lectures will be delivered at 8 o'clock in the evening, with the exception of the last day, when the lecture will be given at 10 a. m. The general subject of the lectures is "Milk and Its Relation to Public Health," and the successive lectures deal with various phases of the milk question: "Dirty Milk;" "Diseases Spread by Milk;" "Clean Milk;" "Pasteurization," and "From Cow to Consumer."

Chicago

Sanitarian Dies.—Andrew Young, formerly head of the Sanitary Bureau of the Chicago Health Department and an official of the department from 1892 to 1903, died in Mobile, Ala., March 25, from heart disease.

Nurses' Home Planned.—The Presbyterian Hospital, Chicago, will erect a nurses' home and school, to cost about $250,000, on a site in Congress Street between Hermitage Avenue and Wood Street, which has been purchased for $55,000. The building will be six stories in height and will be provided with classrooms, a laboratory, dormitory accommodations for 150 and a roof garden.

Vaccine in Streptococcus Throat Infection.—A considerable prevalence of rather severe streptococcus throat infection is reported in Chicago and vicinity. An article on the subject by Drs. Rosenow and Davis appeared in THE JOURNAL March 16. Dr. O. F. Scott, Summit, Ill., reports treating three cases successfully with antistreptococcus vaccine. To establish the diagnosis, cultures were taken. This is mentioned as of interest in connection with the prevalence of throat infection.

Conference on Mental Diseases.—The West Side Branch of the Chicago Medical Society has arranged, as THE JOURNAL has already mentioned, a rather elaborate program on various phases of insanity including such subjects as heredity, paresis, hyperthyroidism, epilepsy, infectious psychoses, criminal insanity, juvenile delinquents, the Binet-Simon tests, nervousness in children, prophylaxis, segregation, hospital treatment, insanity outside of institutions, etc. The essayists include men from Illinois and surrounding states and as far as the Atlantic coast. The first meeting will be a joint one with Chicago Medical Society in the Assembly Hall of the Northwestern University building, Lake and Dearborn Streets, April 17, at 8:15 p. m. The rest of the program will be at the La Salle Hotel, April 18 and 19, probably occupying all of these days. The meeting is open to all physicians and those interested in the subject. Any further information desired may be obtained from Dr. W. T. Mefford, 2159 West Madison Street, Chicago, president of the West Side Branch.

INDIANA

Home for Aged and Infirm Deaf.—Professor Orsen Archibald of the State School for the Deaf, Indianapolis, has given eighty acres of land in White County, near Lafayette, as a site for a home for the aged and infirm deaf of the state. An association has been formed and a maintenance fund of $10,000 is being raised for the home.

Health Institute.—The Indiana State Board of Health held a public institute in Bicknell, March 19-21, under the charge of Dr. W. F. King, Columbus City, assistant secretary. The meetings were held in the evening, at which lectures were given, illustrated by moving pictures and specimens. The subjects treated were school hygiene, inspection of pupils, tuberculosis and sanitary inspection.

KENTUCKY

Sanatorium Opened.—The new sanatorium for tuberculosis patients at the Central Hospital for the Insane, Lakeland, erected at a cost of $10,000, was put into service, March 13, when eighteen inmates were transferred to the new building.

Governor Vetoes Cattle Inspection Bill.—Governor McCreary has vetoed Senate Bill 56, which is entitled "An act to provide for the inspection of bulls, cows and calves, held and owned in this state, for the testing of same, for the destruction of same having tuberculosis, and prescribing a penalty for using reacting animals for dairy purposes."

Physicians to Give Fair.—The physicians of Winchester have decided to give a fair, the proceeds of which will be used for building a hospital in Winchester. The fair will be held August 6 to 10, and following are the officers of the association: president, Dr. D. H. McKinley; vice-presidents, Drs. E. R. Bush and Howard Lyons; secretary, Mr. G. Lee Wainscott, and treasurer, Dr. Ernest Cole.

Sanitary Milk for Louisville.—With the purpose of obtaining a more sanitary milk supply in Louisville, a conference of dairymen, wholesale and retail milk dealers and railway and health officials was held in Louisville, March 22. The discussion was opened by Mr. R. M. Allen, head of the Pure Food Department of the State Experiment Station, at whose instance the meeting was held, and before the conference was adjourned it was agreed that a concerted effort would be made to raise the standard of the milk supply of the city. It may be that as a result of the conference refrigerator cars will be used for bringing milk from the various supply points into Louisville. In order that all dairymen supplying milk to the city may attend one or more of these milk conferences, it was decided to hold them at various points, until the entire territory has been covered.

Personal.—Dr. Ap Morgan Vance, Louisville, has been ill in St. Joseph's Infirmary, by reason of repeated and severe nasal hemorrhages, but is reported to be improving.——Dr. C. A. Fish, Frankfort, has been appointed a member of the board of trustees of the Kentucky Normal and Industrial Institute for Colored Persons.——Dr. A. D. DeBard, Greenup, who has been a patient at the Keller Hospital, Ironton, Ohio, for several weeks, has returned home improved.——Dr. L. O. Pindar, Tyrone, was assaulted and robbed on Fourth between Market and Main streets, Louisville, his left arm was broken, he was badly beaten about the face and received a severe scalp wound. ——The office of Dr. W. E. Risque, Midway, was burned, February 29.——Dr. Charles Kearns, chief medical adviser of St. Elizabeth Hospital for forty years, has retired from active practice, and was tendered a farewell dinner by the medical staff of the hospital, at which Dr. A. D. Kelley acted as toastmaster.

MARYLAND

Appropriation for State Sanatorium.—The legislature has appropriated $100,000 for new buildings of the State Tuberculosis Sanatorium, Sabillasville.

Personal.—Dr. Thomas B. Owings, Ellicott City, has retired from practice.——Dr. J. McPherson Scott, secretary of the Maryland State Board of Medical Examiners, has been reelected mayor of Hagerstown.——Dr. Theodore A. Worrall, North East, is reported to be seriously ill at his home.

County Hospital Opened.—The Washington County Hospital Association has remodeled the building of Kee Mar College, Hagerstown, and converted it into a modern hospital, at a cost of $15,000. The hospital was opened April 1, and can accommodate forty patients. The association has recently fallen heir to a fortune of $260,000.

Baltimore

Lectures on Laboratory Methods.—A series of lectures has been arranged to be given on Tuesdays and Thursdays at Medical Hall, under the auspices of the Medical and Chirurgical Faculty of Maryland. The course is designed to convey to the medical profession the latest knowledge in laboratory methods.

Old Book Presented.—At the last meeting of the Book and Journal Club of the Medical and Chirurgical Faculty of Maryland, Dr. J. Carroll Monmonier, Catonsville, presented to the club the minute book of the Medical and Chirurgical Society of Baltimore for 1832.

New General Hospital.—The Homeopathic Hospital on Mount Street has abandoned its sectarian character and will hereafter be a general hospital, known as the Mount Street Hospital. The following appointments have been made to the

staff: Dr. R. P. Bay, visiting surgeon; Dr. E. H. Kloman, visiting gynecologist; Dr. H. C. Davis, visiting laryngologist, and Dr. C. W. Mitchell and A. C. Smink, visiting physicians.

Personal.—Dr. B. B. Browne has been ill for a few days with septicemia, due to an operation wound.——Dr. O. Edward Janney has been appointed a member of the executive committee of the American Vigilance Association.——Dr. and Mrs. Henry Barton Jacobs and Drs. John H. King and John T. MacCurdy sailed for Europe, March 30.——Dr. John T. O'Mara was operated on recently at St. Joseph's Hospital.——Dr. G. Lane Taneyhill has been elected a member of the executive committee of the Baltimore Conference M. E. Church.

MASSACHUSETTS

Personal.—Dr. Samuel A. Green, formerly mayor of Boston, is in the City Hospital convalescing from injuries received from being knocked down by a horse recently.——Dr. William J. Heffner, Gilbertville, has been appointed associate medical examiner for the Tenth Worcester District.

Cancer Hospital Opened.—By invitation of the cancer commission of Harvard University, the new Collis P. Huntington Memorial Hospital was inspected by several hundred guests recently. The institution is to be devoted solely to the care of cancer patients and it is hoped "by methods of diagnosis and prognosis and treatment, and by investigations along general biologic lines, the study of resident cases, and by animal experimentation to find a path that may lead to the removal of cancer from the list of incurable diseases." The institution received $100,000 from Mrs. Collis P. Huntington and from other sources $200,000.

At the State House.—Various bills for milk regulation by the State Board of Health or local boards of health have been rejected.——The Trustees for the School for the Feeble-Minded ask for $155,000 for four much-needed buildings at Wrentham, two of them being dormitories to accommodate 105 each.——The drinking-cup law is to be amended so that railroad trains shall provide them in suitable receptacles.——Mayor Fitzgerald's bill providing that the state shall care for Boston's tuberculosis cases, has failed in committee but a bill approving the payment of the subsidy to cities as well as towns whose tuberculous patients are cared for in private institutions is reported favorably.——A bill providing that needy pupils in the public schools shall be provided with food and clothing has been defeated in the senate by a vote of 14 to 12.

The Graduate School of Medicine.—Dr. Horace D. Arnold, dean of the Graduate School of Medicine, Harvard Medical School, announces that beginning October 1, graduate instruction at the Harvard Medical School will be organized as a department of the faculty of medicine of Harvard University, with a separate dean and administrative board. The object of this department is, by better organization and the development of both clinical and laboratory teaching facilities, to offer graduates in medicine opportunities to continue their studies in a thorough and scientific manner, and to extend to others who are qualified, opportunities for advanced study and research. Additional courses are being arranged and the dean suggests that any one desiring graduate instruction outside of the present announced schedule, should write to him for further information.

MINNESOTA

New Officers.—Washington County Medical Society: president, Dr. D. D. Kalinoff; secretary-treasurer, Dr. E. E. Wells, both of Stillwater.——Brown and Redwood County Medical Society: president, Dr. J. L. Schoch, New Ulm; secretary-treasurer, Dr. G. F. Reineke, New Ulm.

Medical Building.—It is announced in the daily press that the Mayos are about to erect a large medical building in Rochester, exclusively for the use of their staff. The building is to be two and a half stories in height, will provide seventy-five or eighty offices, and is to be erected on property formely owned by the late Dr. W. W. Mayo.

Campaign for Sanitation.—Seventy-five physicians and dentists of Minneapolis, who are members of the Civic and Commerce Association, held a conference March 7 to consider health problems now facing Minneapolis, and entered into a cooperative campaign for public health and sanitation. At the conference the matters of disease prevention, hospital facilities, especially for tuberculosis and communicable diseases, infant mortality, child welfare, pure milk supply, extermination of flies and other disease carriers, public and private agencies aside from the Health Department, and the financing of the warfare on disease were taken up and thoroughly discussed.

Sickness Among Reservation Indians.—Dr. I. J. Murphy, medical supervisor of the Indian Department, who has been investigating health conditions on the Minnesota Indian reservations for a month and has inspected every Indian settlement on the White Earth reservation, reports that a large proportion of the Indians are afflicted with tuberculosis of the lungs and glands, but that no trachoma was found. At the Pine Point boarding school 74 per cent. of the pupils were found to be afflicted with trachoma; 21 per cent. had corneal scars; 17 per cent. had tuberculous glands; 2 per cent. were suffering with tuberculosis of the spine, and 10 per cent. had suspicious lungs. Of the sixteen families at Twin Lake settlement, numbering sixty-five persons, five were found to have pulmonary tuberculosis; five tuberculous glands and thirteen trachoma. At Elbow Lake settlement, with fifty-four inhabitants, four members had pulmonary tuberculosis; four glandular tuberculosis and thirteen were afflicted with trachoma. At the Wild Rice River settlement seventy-six were inspected. Of these, eight had tuberculosis of the lungs; nine tuberculosis of the glands and twenty-four trachoma. At the White Earth boarding school, with an enrollment of 140 pupils, about twenty-five were found to have active tuberculous processes and about the same number were suffering from trachoma.——At a meeting of the executive committee of the State Board of Health at St. Paul, March 19, the health affairs on the White Earth Indian reservation were discussed, and Dr. H. M. Bracken was delegated to confer with the Commissioner of Indian Affairs, Washington, in the attempt to make some arrangement with the Indian bureau to provide for cooperation between the state and the federal authorities. The state board favors appointing a specialist to work with the specialist of the federal department in dealing with the trachoma situation on the reservation.

MISSOURI

New Officers.—Harrison County Medical Society: president, Dr. J. H. Morroway, Ridgeway; secretary, Dr. O. A. Schmid, Bethany.

Hospital Soon to be Ready.—The first and second floors of the Levering Hospital, Hannibal, will, it is promised, be ready for occupancy this month.

Library Club.—Incorporation has been asked for the Kansas City Medical Library Club. Dr. R. M. Schauffler is named as president and Dr. Rush E. Castelaw, secretary and treasurer.

New Medical College Magazine.—The first issue of the *College Spirit*, a new monthly publication of the students of the University Medical College, appeared February 24. The magazine is edited by Dr. Flavel B. Tiffany, with Drs. O. L. McKillip and O. H. Yereman, associates.

NEW YORK

New Officers.—Medical Society of Newburgh Bay and the Highlands: president, Dr. A. Judson Benedict; secretary, Dr. Talcott O. Vanamee, both of Newburgh.

Personal.—The residence and office of Dr. A. J. Butler, Unadilla, was destroyed by fire early March 21.——Dr. Hebard E. Nichols and family, Syracuse, left March 25 with a party to take up cooperative stock farming on a tract of land in Prince Albert, Sask.

New Society.—Buffalo Medical and Surgical League, organized March 11: President, Dr. A. W. Hengerer; secretary, Dr. Julius Richter. The objects of the league are set forth as mutual protection and promulgation of the principles of ethics of the American Medical Association.

Rochester to Have Model Tenements.—Mr. George Eastman is financing an enterprise which proposes to provide a block of model tenement houses in Rochester similar to the Vanderbilt tenements in New York City. It is estimated that about $1,000,000 will be invested in this undertaking.

State Laboratory Work.—During 1911, 3,981 sanitary water analyses were made in the laboratories of the state, an increase of 49 per cent. over the work of the preceding year, which in its turn was an increase of 32 per cent. over the work of the preceding year. The public water supplies of 383 cities, towns and villages were examined during the year. The total number of specimens examined for the detection of contagious diseases and the control of quarantine during 1908 was 2,938; in 1909, 3,695; in 1910, 8,895; and in 1911, 10,482. The special work of cholera control involved the providing of cultural material, the personal examination and taking and the bacteriological handling of cultures from 27,020 immigrants, which figures should be added to the routine work of the laboratory, making a total of 37,502. During the year, 43,709 packages of diphtheria antitoxin of 1,500 units each, making a total of

65,563,500 units of antitoxin, were prepared and distributed, an increase of 17.5 per cent. over the output of the previous year, which was itself an increase of 51 per cent. over the output of 1909. There were supplied during the year, 3,374 sputum outfits, 1,368 blood-serum outfits and 15,579 diphtheria culture outfits. In addition to these 70,000 peptone cultures and material therefor were supplied by the Laboratory Division for the special work of cholera control.

Themes for Lectures.—A course of lectures on the care of infants is being given at Mechanics Institute, Rochester, on Friday mornings. Lectures have already been given on: "Vaccination, Immunity Treatment, Serum," etc., by Dr. Charles O. Boswell, and on "Care of the Eyes," by Dr. Albert C. Snell. The following lectures are to be given in the course: April 12, "Hygiene of Infancy and Childhood"; April 19, "Feeding of Infants of 1 Year," and April 26, "Feeding of Children from 1 to 16 Years," by Dr. Norris G. Orchard; May 3, "Prevention of Deformities," by Dr. Ralph R. Fitch; May 10, "Care of the Skin," by Dr. E. W. Ruggles; May 17, "Care of the Ear, Nose and Throat," by Dr. N. D. McDowell, and May 24, "The Infectious Diseases of Infancy and Childhood," and May 31, "Practical Instruction in Taking Temperatures," by Dr. Joseph Roby.

New Hospitals.—The new Lestershire Hospital was formally opened, March 18, and patients were received on the following day. The convalescents now at the Avenue A Hospital have been removed to the new building.——Utica is said to stand ready to do its part in the establishment of a tuberculosis hospital on the General Hospital grounds, when the location of a site is finally determined.——Preparations are under way to install an emergency hospital at the New York, Ontario and Western Railway shops at Middletown, to administer first-aid to the wounded. The hospital will be in charge of Drs. J. B. Holet and T. D. Mills.——Efforts are being made to double the capacity of the Oneida City Hospital, and ex-Mayor Goldstein is said to have agreed to pay one-fourth of the expenses incurred in the enlargement.——The Tonawanda Hospital committee, which is attempting to establish a municipal hospital, is being aided by the New York State Charities Aid Society. The common council has adopted a resolution requesting the assistant secretary of the society to come to Tonawanda to prepare plans for the establishment of a city hospital there.——The governor is said to have signed the bill appropriating $115,000 for the purchase of the so-called Marcy site for the new Utica State Hospital for the Insane.——The mayor of Buffalo has approved the bill authorizing an additional $50,000 for the J. N. Adam Memorial Hospital, Perrysburg.——The Syracuse Rapid Transit Company has donated $2,500 to the hospital fund of the city.

New York City

University Needs Funds.—Chancellor Elmer Ellsworth Brown, of New York University, has asked the university council for $4,750,000. Of this amount $800,000 is asked for the medical department.

Personal.—Dr. Graeme M. Hammond has been appointed special physician to the American Olympic games team.——Dr. John McAllister, whose right thumb was amputated March 20, on account of septicemia, is resting well at Mount Sinai Hospital.

Needs of Quarantine.—The new health officer of the port of New York, after consultation with the advisory board, urges the immediate construction and equipment of a commodius fireproof building, to be used as a pathologic and bacteriologic laboratory, with accommodation for a force of thirty bacteriologists.

Office Buildings for Physicians.—Following the example of other large cities, two buildings for the exclusive use of doctors and dentists have recently been erected in Brooklyn. One is at Hanson and South Elliott Places—a seven-story structure—and the second, Galen Hall, is a twelve-story structure adjoining Packer Institute in Joralemon Street.

Exhibition of Medical Books.—For the first time in the ninety years of its history, the Brooklyn Medical Library gave a public reception, each afternoon and evening, from March 24 to March 31, and the librarians and officers of the society acting as a reception committee pointed out the objects of especial interest and explained the rare books and manuscripts of the collection.

New Convalescent Hospital.—The Burke Relief Foundation will open a convalescent hospital at White Plains on a sixty-acre tract of land recently purchased. A new type of institution and work for the care of the sick of New York City will be established under the superintendency of Dr. Fred L. Brush, who resigned as superintendent of the New York Post-Graduate Medical School and Hospital, to take up this work.

Reporting Infantile Paralysis.—The Research Laboratory of the Department of Health states that many cases of infantile paralysis come to their notice which have not been regularly reported to the Department of Health. The Department of Health has sent out postal cards calling the attention of physicians to the regulations of the department requiring that every case of infantile paralysis shall be reported. Notices to this effect are also being sent to medical journals published in this city.

Newspapers Help Tuberculosis Fight.—The National Association for the Study and Prevention of Tuberculosis shows in a statement just published that one and one-half million inches of space in the columns of the newspapers and magazines of the country are being devoted every year to fighting tuberculosis. It is estimated that if all this space were gathered in one paper it would make a newspaper of 6,250 pages. During the past four years more than ninety miles of space has been devoted to this subject. Dr. Livingston Farrand, secretary of the association, says that when tuberculosis has become a rare disease, the American press may justly lay claim to a big share in this achievement.

Clinic for Feeble-Minded.—A clinic for mental and nervous diseases in which special attention is being paid to feeble-mindedness has been established by the New York Post Graduate Medical School and Hospital, which will be in charge of Dr. Max G. Schlapp. This clinic is for the worthy poor from any part of the city. Its special purpose is to identify mental and moral defectives and incorrigibles and to give advice to parents concerning their care. When it is thought necessary that such children should be treated in institutions a suitable place will be found without expense to the parents. Taken in time it is believed that many of these children can be greatly improved and possibly cured.

OHIO

Cincinnati

Civic Association Obtains Control of Lancet-Clinic.—The controlling interest in the *Lancet-Clinic* is said to have been purchased for 86,300 by Dr. Christian R. Holmes on behalf of a number of medical men prominent in the Cincinnati Medical Civic Association, who had subscribed $12,000 and promised as much more to purchase the journal and improve and maintain it. The journal will, from this time on, be the official organ of the Cincinnati Medical Civic Association. Dr. George Strohbach remains as business manager.

PENNSYLVANIA

Another Clinical Society Formed.—The Episcopal Hospital Clinical Society has been organized by the medical staff and Dr. Francis W. Sinkler chosen president and Dr. E. G. Alexander secretary.

Luncheon to Visiting Pathologists.—The Philadelphia Pathological Society entertained the American Association of Pathologists and Bacteriologists at an informal luncheon at the Houston Club, University of Pennsylvania, April 5.

Bensley Speaks at Pittsburgh.—At the second special meeting of the Society for Biologic Research of the University of Pittsburgh, March 20, Dr. Robert Russell Bensley, director of the Hull Anatomical Laboratory of the University of Chicago, delivered an address on "The Construction of the Pancreas and its Bearing on the Islet Theory of Diabetes."

Health Advice to Foreigners.—The State Board of Health has issued a series of pamphlets in German, Slavish, Polish and Italian, setting forth clearly and concisely the precautions which should be observed in the care of scarlet fever, diphtheria, typhoid and tuberculosis, to prevent the infection of others, and to insure most favorable conditions of the patient.

Personal.—Dr. Samuel G. Dixon, Harrisburg, city health commissioner, presided at the centennial celebration of the Academy of Natural Sciences, Philadelphia, March 22.——A farewell banquet in honor of Dr. M. J. Freshwater, Jeannette, was given by the local Elks Lodge, March 14, and Dr. Freshwater was presented with a ring bearing the insignia of the order. He leaves for the West this month.

College Secures Endowment.—The sum of $200,000 has been received recently by the Hahnemann Medical College and Hospital, Philadelphia. Half of this sum was given by Walter Hering for the endowment of the Constantine Hering professorship of materia medica and therapeutics and the other half by the will of Mrs. William L. Elkins, the income to be used for the general support of the institution.

Philadelphia

Nurse Society Needs Funds.—The annual meeting of the Visiting Nurse Society was held at its new building, March 8. The society still needs $8,800 to pay for the new building, which was opened last October and was erected at a cost of $35,000. The total receipts for the year were $27,900.32 and the expenditures, exclusive of money spent on new building, amounted to $27,381.27.

Medallion to Anesthetists Unveiled.—In celebration of the seventieth anniversary of the first use of ether as an anesthetic for surgical purposes, a bronze medallion, in honor of Dr. Crawford Williamson Long, a graduate of the class of 1839 of the University of Pennsylvania, was unveiled in the hall of the Medical Laboratory building, March 30. Addresses were made by Drs. J. William White and J. Chalmers Da Costa.

SOUTH DAKOTA

New Officers.—Hot Springs Medical Association: president, Dr. F. E. Walker; secretary, Dr. R. M. Wheeler.

New Hospital Opened.—The new McKenna Hospital, Sioux Falls, has been opened and patients from other hospitals have been transferred thereto. The hospital is of modern construction and thoroughly up to date in its equipment.

VIRGINIA

Pavilion Burned.—The Latane pavilion at the Catawba State Sanatorium for Tuberculosis was destroyed by fire February 24, with a loss of about $4,000. The pavilion furnished accommodation for sixteen patients, all of whom were removed without casualties.

Municipal Hospital Needed.—The Norfolk Medical Society, appreciating the need of a municipal hospital for the treatment of emergency cases and for the segregation of infectious diseases, has caused to be introduced in the council a resolution appropriating $15,000 for the utilization of the old High School building as an emergency hospital, and for the erection of a one-story structure, for the segregation of communicable diseases, capable of accommodating twenty-four patients.

Personal.—Dr. Christopher F. Newbill, Center Cross, former health commissioner of Norfolk, is reported to be critically ill as a result of cerebral hemorrhage.——Dr. Russell Cecil, Richmond, was run over by an automobile, March 17, fractured his collarbone and suffered painful bruises.——Dr. C. W. P. Brock, police surgeon of Richmond, slipped on the ice March 4 and fell through a plate-glass window, sustaining severe cuts and bruises.——Col. Junius F. Lynch, Norfolk, has resigned as surgeon general of Virgina.——Dr. Vernon A. Brooks, Portsmouth, has been appointed assistant surgeon of the Seaboard Air Line.——Capt. J. Fulmer Bright, surgeon of the Richmond Light Infantry Blues Battalion, has been commissioned major, M. C., N. G., Va., and assigned to the First Infantry, vice Major Truman A. Parker, resigned.

WISCONSIN

Vaccinated Against Typhoid.—At the request of Surgeon-General John B. Edwards, N. G., Wis., the National Guard companies in eighteen towns in the state have been vaccinated against typhoid.

New Officers.—Sheboygan County Medical Society: president, Dr. G. H. Stannard; secretary-treasurer, Dr. W. F. Zierath, both of Sheboygan.——Outagamie County Medical Society: president, Dr. J. S. Reeve; secretary-treasurer, Dr. F. P. Doherty, both of Appleton.

Health Board Created.—The city council of Kenosha, at its meeting March 18, created a non-partisan board of health, provided for the appointment of a public health commissioner, health officer and a nuisance inspector, all with police authority, and appropriated $4,000 for the department.

Health Statistics.—The annual report of the State Board of Health shows that the annual birth-rate of the state is about 22 per 1,000 and the death-rate 12 per 1,000. Based on the mortality rate of each disease, the report indicates that nearly 86,000 cases of preventable diseases occur annually in the state.

Sanatorium for Eau Claire.—The mayor of Eau Claire, the supervisors of Eau Claire County and the secretary of the Antituberculosis Association have been appointed by the county board as members of a committee to consider the advisability of establishing a tuberculosis sanatorium for Eau Claire County.

Personal.—Dr. Edward S. Hayes, Eau Claire, has been reappointed a member of the State Board of Health and Vital Statistics.——The Milwaukee County Medical Society, at a meeting, March 18, adopted a resolution asking Congress to give Dr. A. I. Comfort, National Home, who has been nearly fifty years in the government service, a permanent pension.

GENERAL

Ask Hospital Ship for Banks.—The Master Mariner Association and Board of Trade of Gloucester, Mass., are circulating petitions requesting Congress to order a hospital ship to be stationed on the banks of Newfoundland for the benefit of the New England fishing fleet.

Death of Dr. Musser.—As we go to press, a telegram is received announcing the sudden death, from angina pectoris, of Dr. John Herr Musser of Philadelphia, president of the American Medical Association in 1903-4. An obituary notice will appear in THE JOURNAL, April 13.

Wiley Accepts an Uncensored Position.—The magazine *Good Housekeeping* announces that Dr. Harvey W. Wiley, formerly Chief Chemist of the United States Department of Agriculture, became contributing editor of that magazine, April 1, and that the magazine will hereafter be the exclusive channel for his writings on pure food, health and like topics. The magazine has established at Washington a "Bureau of Foods, Sanitation and Health," of which Dr. Wiley will be in full charge and control as director.——Dr. Wiley also is, it is announced, under contract to deliver a series of lectures in various cities of the United States.

CANADA

Small-Pox in Quebec Province.—It is estimated by Dr. J. A. Beaudry, Montreal, chief inspector of the Provincial Board of Health of Quebec, that there have been more than 75,000 cases of small-pox in the Province during the year.

New Hospitals in British Columbia.—New Westminster, B. C., contemplates the erection of a hospital, to cost $225,000.——Nelson has raised $70,000 for a hospital.——The provincial government has voted $30,000 toward a hospital at Kamloops.——Cumberland is building an isolation hospital.——A "West Coast" hospital is to be built at Alberni.

Personal.—Drs. R. B. Hopkins and Caroline Cook have been appointed assistant medical inspectors of the board of education of Toronto.——Fire in the house of Dr. L. M. More, Brandon, March 16, caused considerable damage.——Dr. J. G. Adams, pioneer of dental inspection in the public schools of Toronto, started March 13 on a tour of the various cities of Canada to institute dental inspection for school children.——In a railway accident near Saskatoon, Sask., March 5, Dr. W. R. Sparling, North Battleford, was seriously injured.——Dr. J. W. Coffin has been reelected medical health officer of Rossland, B. C.

Public Health Act.—In the Act respecting public health introduced in the Ontario Provincial Legislature, March 14, it is provided that the lieutenant-governor may divide the province into not more than ten districts, and may appoint a legally qualified medical practitioner to be known as the district officer of health for each district, cities of more than 50,000 being excluded from such districts. The district health officer is to be paid by the province a salary of not more than $2,500 and a traveling allowance not to exceed $1,000 a year. The counties included in the district shall contribute to the expenses of the district officer of health in proportion to their respective populations. In unorganized districts, this cost will be borne by the province.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, March 23, 1912.

The Royal College of Surgeons and the Late Lord Lister

At a meeting of the council of the Royal College of Surgeons, Sir Henry Morris, past-president and senior member, moved a vote of condolence to the family of the late Lord Lister, to whose work he paid the following eloquent tribute: "Surgery has lost her most brilliant student and her greatest master, England one of her most famous sons, the world one of its most illustrious citizens. He raised surgery from a dangerous and precarious practice to a precise, safe and beneficent art. His methods have been adopted in every country and the benefits which flow from them are blessings conferred on every race of mankind. His perspicacity, his natural insight, his fertility of resource, his power of close and discriminating observation, his philosophic reasoning, his inflexible pursuit of truth, his steadfastness of purpose, his capacity for taking pains, his

unwearied patience and his undaunted efforts to triumph over difficulties stamped him as a great example of true and scientific genius. The human sympathy which caused him to deplore the great mortality due to infective surgical disease, his solicitude to prevent suffering and premature death, his patient and unceasing labor to overcome them, his gratification at the ultimate success of his efforts to ameliorate pain and prolong life eminently distinguish him as a great philanthropist. His gentle nature, his deep compassion, his courteous and dignified bearing, his imperturbable temper, his resolute will, his indifference to ridicule, his tolerance of hostile criticism combined to make him one of the noblest of men. His work will last for all time; its good results will continue throughout all ages; humanity will bless him forevermore; his fame will be immortal. In the fulness of years, after a glorious and satisfying career, crowned with great and various honors, having witnessed the successful completion of his work, the gentle hand of Death laid hold on him and Lister passed from among us. His body perisheth, but the influence of his mind will continue everlastingly."

It was resolved that this memorial of esteem and admiration be printed surrounded by the symbol of mourning, in the college minutes and that an inscribed tablet should be placed in a suitable and conspicuous position within the walls of the college, to serve as evidence to future generations of the honor, respect, and reverence in which the great founder of aseptic surgery was held.

Under the terms of his will Lord Lister requested his nephews, Mr. R. J. Godlee, president of the Royal College of Surgeons, and Dr. A. H. Lister to arrange his scientific manuscripts and sketches, destroying or otherwise disposing of such as are of no permanent interest. He bequeathed the said manuscripts and sketches, when so arranged, to the Royal College of Surgeons.

The Workmen's Compensation Act

A curious case has been heard under the Workmen's Compensation Act. The widow of a chef claimed compensation for the death of her husband, who while dressing in his room at the hotel slipped over a mat, complained of great pain, went home and sent for a physician. The latter gave evidence to the effect that death was due to rupture of the right renal artery, which he attributed to a violent twist, but admitted he had never known or read of the renal artery being ruptured in this way. The doctor was not allowed to state what the deceased had told him, as it was not "evidence," that he had slipped while dressing and violently twisted himself. The judge decided against the claim, as he was not satisfied that an accident had taken place or that it arose "out of and in the course of" the deceased man's employment, as required by the act.

Telephones and Tuberculosis

Statements have frequently been made as to the possibility of the transmission of tuberculosis by the mouthpiece of the telephone. At the instance of the postmaster-general an exhaustive investigation has been carried out with the result that it has been conclusively proved that there is no ground for alarm. The investigation was carried out by Dr. Spitta of St. George's Hospital, bacteriologist to the king. A number of telephones which have been in use at busy call offices in London for various periods of time and had received no special cleansing treatment other than that normally given were examined. Washings were prepared from the mouthpieces and tests were made by the inoculation of guinea-pigs to ascertain the presence of tubercle bacilli. The results in all cases were negative. Further experiments were made with telephones which were known to have been exclusively used by persons suffering from pulmonary tuberculosis. For this purpose telephones were fitted in the wards of a sanatorium and used only by patients in different stages of pulmonary tuberculosis for varying periods of time and not in any way cleansed or disinfected. The results again were entirely negative. Dr. Spitta therefore concludes that the transmission of tuberculosis by the telephone mouthpiece is practically impossible. These results confirm the researches carried out by Dr. Klein at St. Bartholomew's Hospital in 1905.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, March 15, 1912.

Meningism as a Precursor of Mumps

Two army physicians, Drs. Colomb and Mary-Mercier, recently reported before the Société médicale des hôpitaux de Paris the case of a man who was found one morning stretched senseless on the floor of his room, with eyes fixed, pupils dilated, pulse about 120, temperature 104 F. (40 C.), etc. There was, moreover, a stiff neck, nausea and an accentuated Kernig sign. The patient remained in coma for three days, at the end of which all these symptoms disappeared, but twenty-four hours afterward the parotids became swollen and painful and showed the aspect of a typical case of mumps. The disease developed normally and the meningitic symptoms did not reappear. What is particularly interesting in this report is the fact that the meningeal symptoms did not accompany but preceded the appearance of the mumps.

Dr. Hallé of Paris mentioned that he had recently observed a young man who presented a meningeal syndrome with Kernig's sign and stiff neck some days before the occurrence of mumps. As in the previous case, recovery took place rapidly.

Harvard Club

About fifty students of Harvard University have, on the initiative of Mr. Robert Bacon, ambassador of the United States, founded the Harvard Club, to be composed of former Harvard students residing in France.

Personal

On March 11, the Académie des Sciences elected a member in the section of medicine and surgery to replace Professor Lannelongue, who recently died. There were six candidates, all members of the Académie de médecine, and the contest narrowed down to Drs. Charles Richet, candidate of the physicians, and Lucas-Championnière, candidate of the surgeons. Dr. Lucas-Championnière was elected on the second vote.

The new academician was born Aug. 15, 1843, at Saint-Léonard, department of l'Oise. He received his doctor's degree in 1870, and was appointed surgeon of the hospitals of Paris in 1874. His best claim to renown is that he introduced into France the antiseptic method of Lister, with whom he became acquainted in 1868, while traveling through Scotland. Dr. Lucas-Championnière has been president of the Société de chirurgie and a member of the Académie de médecine since 1894.

Dr. Lesieur, *agrégé* at the Faculté de médecine de Lyon, has been appointed professor of general pathology and therapeutics in the school in place of Dr. P. Courmont, who was recently appointed to the chair of experimental medicine.

Dr. Soulié, *agrégé* in charge of the course in anatomy at the Faculté de médecine de Toulouse, has been appointed professor of anatomy in that school in place of Dr. Charpy, deceased.

At the last session the Académie de médecine elected M. Mesureur, director of the public charities, an associate member in place of M. Monod, deceased.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, March 8, 1912.

Municipalization of the Berlin First-Aid Service

March 7 the negotiations on the transfer of the first-aid service to the city were completed. A commission is to be appointed for the management of the existing first-aid service and for the determination of the principles and conditions of the municipalization or transference of the institutions at present in existence to the city. This commission is to consist of four members of the administration (*Magistrat*), eight aldermen (*Stadtverordneten*) and four representative citizens, one to be chosen by the central committee of the Krankenkassen of Berlin as a representative of the Krankenkassen. It is proposed to retain the officials (*Sanitätswachen*) already employed on April 1 of this year; to leave the regulation of the medical service to the commission; to allow the commission to confer with the official representatives of the organized medical profession, the Aerztekammer, asking to have a committee of physicians appointed for general discussion on the institution and management of the whole first-aid service, this committee to be made up of medical men with sufficient knowledge for the advancement of the first-aid service but who need not themselves belong to the Aerztekammer. This committee should be composed of the heads of public hospitals, of specialists who are not employed in the hospitals, and finally of practitioners who do not have any part in the first-aid service.

The Question of Contracts Under the New Insurance Legislation

In the session of the business committee of the German Aerztevereinsbund, held Feb. 18, at which Professor Loebker of Bochum was again elected chairman, the following resolu-

tions were unanimously adopted as reported by the Krankenkassen committee:

For the successful carrying out of the resolutions adopted at the Stuttgart meeting (*Aerztetag*) the individual conflicts hitherto in vogue should be avoided; instead, a simultaneous, determined, regular and united action of all local organizations of insurance physicians is indispensable. The local organizations of the insurance physicians or a committee appointed by them should correspond to the organization of the Krankenkassen; as a rule there should be an organization of the kind for every insurance office. The association of insurance physicians should obtain a legal status. They or the economic committee or department of the local organization should admit at once every physician who has an ethical standing who applies, and they should make it their aim to draw up and put through the contracts of the physicians with the insurance companies. Where there is already a local association or an economic department of the local organization, their by-laws should be adapted without delay to the new conditions and the demands of the association (*Aerztetag*). The Krankenkassen commission is charged with the preparation of a model contract for insurance physicians; these model contracts should be punctually furnished to the local organizations of the insurance physicians. The work of perfecting the organization must be taken up without delay, and it should be completed not later than July 1, 1912. By June 1, 1912, the contracts headquarters in Leipsic should be informed what local organizations in the individual districts are charged with the making and putting through of the contracts with the insurance societies.

It was further determined that the executive and advisory board of the Leipsic league should establish a contract headquarters, located in Leipsic, as provided for by the resolution of the Stuttgart session (*Aerztetag*), and should confer due authority on it. The necessity for these preparations on the part of the German physicians for strife with the Krankenkassen when the present contracts expire, is shown by the efforts which are already being made by the executive authorities of the Krankenkassen. By concerted action of the various Krankenkassen, to counteract the measures of the organized profession in reference to the contest to be expected on the introduction of the imperial insurance law, they are endeavoring by agents who are visiting the physicians or by advertisements in the newspapers to induce physicians to accept positions as so-called control or confidential medical officers of the societies. The executive committee of the Leipsic league, therefore, is already warning physicians against accepting such positions.

Appropriations for the German Universities This Year

According to the official estimate of the expenses of the Prussian universities, including the Lyceum Hosianum at Braunsberg, for the fiscal year 1912, they will amount to $5,016,780 (20,065,556 marks). Of this amount $2,202,058 (8,808,232 marks) is to be spent for institutes, collections and the university religious services. For salaries, remuneration and other personal expenses of the professors, instructors, officers, assistants and employees $2,059,466.50 (8,239,806 marks) are allowed and for lodging allowance $288,687.50 (1,154,750 marks). For the expenses of the academic management $93,266.50 (373,066 marks) are appropriated, for the building expenses $200,375.75 (801,503 marks) and for taxes $9,868 (39,472 marks). For contingent expenses $110,970.75 (443,883 marks) are provided, and $51,195.50 (204,782 marks) are appropriated for relief and stipends. The entire expenses are distributed among the individual universities as follows: Berlin $1,184,515 (4,738,061 marks), Breslau $541,311.50 (2,165,246 marks), Halle $546,982 (2,187,929 marks), Bonn $485,146 (1,940,584 marks), Kiel $482,741 (1,931,964 marks), Göttingen $463,215.50 (1,852,862 marks), Königsberg $411,621 (1,646,485 marks), Greifswald $366,475.50 (1,465,902 marks), Marburg $348,326.50 (1,394,306 marks), Münster $168,158.75 (672,635 marks) and Braunsberg $17,395 (69,581 marks). The expenses are to be met by the following income: from the state fund, $3,636,801.75 (14,547,207 marks); from endowments and other funds, $178,928 (715,712 marks); interest from capital and the income from real estate, $119,619.50 (478,478 marks); and from their own earnings, $1,081,039.50 (4,324,158 marks).

Official Enumeration of Lupus Patients in Prussia

The Prussian minister of the interior has requested the provincial authorities to provide for an exact census of all lupus cases. This order fulfils a request of the lupus commission of the German central committee for the campaign against tuberculosis. The chief function of this committee consists in finding those lupus cases which are still in the initial stage of the disease and to provide them with the very promising curative treatment. In many places already by cooperation of the state officials with the help of the executive committees of the communes and of the physicians, lists of all the lupus patients have been obtained. In this way in some districts forty to sixty persons have been found who were still without treatment and now are undergoing treatment. In view of the results so far achieved, the lupus commission contemplates the institution of a curative treatment for all patients still curable who are discovered by the application of these methods in all districts of the monarchy. In cases in which there is no one to assume responsibility for the expenses and the patients themselves have not the necessary means, the lupus commission is prepared to assume a part of the cost of treatment.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, March 16, 1912.

A Tribute of Honor to Lord Lister

As soon as Lister's death was known in this city the Gesellschaft der Aerzte resolved to show its special appreciation of the merits of the illustrious deceased by a "Lister Lecture," an exceptional honor. The lecturer, Professor Fränkel, clearly illustrated the enormous advance of modern medicine inaugurated by Lister, but he also laid stress on the fact that Lister's method had been nearly discovered previously, by Semmelweis and von Kern, two physicians of Vienna, who had well established the value of cleanliness (antisepsis) in surgery, but who lacked the energy and the broad view necessary to bring their opinions to a wider application. In the course of the lecture, it was mentioned that it took no less than four years before the antiseptic methods advocated by the eminent deceased were regularly applied in this country.

The Austrian Cancer Hospital Now Secured

Under the will of a rich old lady, a sum of 1,000,000 kronen ($200,000) was bequeathed for the purpose of erecting and maintaining a special cancer hospital, the only one in this country. Bureaucratic and fiscal reactionism, however, prevented the trustees of the will from handing over the money to the Austrian Cancer Society, which was founded a little over a year ago, and in whose program the building of such a hospital plays a prominent part. After various litigations, the will was probated and the cancer society will receive its grant, together with a sum of another 400,000 kronen, which had been granted by Archduke Rainer (the emperor's uncle) for research of cancer. The government has also granted a yearly subsidy of 10,000 kronen, to be increased up to 40,000 a year if required. Thus the society has all the funds and securities required, and a site has been selected on which the hospital will be erected. Not only incurable patients, rejected by other hospitals, will be received, but also those who will be benefited by operation; for the hospital has to serve principally a scientific purpose: investigation of cancer by all methods and with all means.

Association News

THE ATLANTIC CITY SESSION

Announcement of the Atlantic City Number to be Issued with Additional Details About the Next Annual Session

The Atlantic City Number of THE JOURNAL will be issued May 4. It will contain, as usual, an illustrated article on Atlantic City and its attractions. There will be lists of hotels and meeting places, lists of committees, and the preliminary programs of the various sections, together with much other information of value to those who expect to attend the next annual session of the American Medical Association, June 4 to 7.

Dr. J. Rawson Pennington, Chicago, chairman of the Committee on Transportation and Place of Session, is in communication with the various passenger associations, and will announce as soon as possible the exact rates for transportation to

and from Atlantic City. The Trunk Line Association has agreed to one and one-half first-class limited fare for the round trip, going and returning by the same route. Summer excursion rates to Atlantic City will extend this or a better rate to the territories covered by the other passenger associations.

In THE JOURNAL, March 16, p. 802, we announced the chairmen of the various committees responsible for the arrangements at Atlantic City. The chairman of the Local Committee on Arrangements is Dr. W. P. Conaway, 1723 Pacific Avenue, Atlantic City, and the chairman of the Subcommittee on Hotels is Dr. W. E. Darnall, 1704 Pacific Avenue, Atlantic City. The latter will be glad to aid any who wish assistance in selecting their hotel accommodations. A list of the hotel headquarters was given in THE JOURNAL, March 16, p. 802. Those who have special preferences regarding hotel accommodations would do well to secure them early before choice is limited.

A fire in Atlantic City last week destroyed the major portion of Young's Old Pier on which, among other buildings, was the one to house the Bureau of Registration, the Commercial Exhibit, the Scientific Exhibit, etc. A portion of this building, however, was saved. Telegraphic advice gives assurance that the damage done by the fire will not interfere with the coming session of the Association.

Marriages

ALBERT JOHN MOLZAHN, M.D., Hay Springs, Neb., to Miss Sadie Sellers Hardy of Washington, D. C., at Hay Springs, March 4.

JAMES HAROLD HOWARD, M.D., York, Pa., to Miss Nettie B. Lilet of Tompkinsville, Staten Island, N. Y., March 21.

JOHN WILLIAM OVITZ, M.D., Genoa, Ill., to Miss Urania Rogers of Sycamore, Ill., March 28.

JAMES T. JOHNSON, M.D., to Mrs. Maggie Hooper, both of Nashville, Tenn., March 21.

WILLIAM S. BAGOT, M.D., Denver, to Miss A. K. Wood of San Francisco, March 20.

IRA RICHARDSON, M.D., to Miss Nina Phillips, both of Fremont, Neb., March 20.

DALE C. RAY, M.D., to Miss Mattie Lewis, both of Malad City, Ida., March 21.

Deaths

Gustave C. E. Weber, M.D. St. Louis Medical College, 1851; for fifty-five years a practitioner of Cleveland, O., professor of surgery in Cleveland Medical College from 1856 to 1861; surgeon-general of Ohio until 1863 and later surgeon of the One Hundred and Twenty-Ninth Ohio Volunteer Infantry during the Civil War; one of the organizers of the Charity Hospital Medical College in 1864 and professor of clinical surgery and dean of the faculty; later a member of the faculty of the University of Wooster; dean of the Western Reserve University Medical Department from 1880 to 1897, when he was appointed consul to Nuremberg, Germany; died at his home in Willoughby, O., March 21, from senile debility, aged 81. The active pallbearers at Dr. Weber's funeral were surgeons of Cleveland.

Mary Lois Jones, M.D. Woman's Medical College of Baltimore, 1901; a member of the American Medical Association and secretary of the Woman's Medical Association of Pittsburgh, Pa., and of the Woman's Medical Society of Western Pennsylvania; a member of the staff of the Pittsburgh Free Dispensary and the Dispensary and Clinic for Diseases of Women and Children; died in St. Francis Hospital, Pittsburgh, March 17, aged 35. At a special meeting of the Woman's Medical Association of Pittsburgh, March 18, resolutions of sorrow and sympathy regarding the death of Dr. Jones were unanimously adopted.

Fred L. Morgan, M.D. Syracuse (N. Y.) University, 1896; formerly city physician and police surgeon of Syracuse and from 1898 to 1904 demonstrator in his alma mater; who was obliged to move to Colorado in 1904 on account of his health; died at his home in Colorado Springs, March 19, from pneumonia, aged 37.

Thomas Stone Lewis, M.D. University of Louisville, Ky., 1898; first intern of the Good Samaritan Hospital, Lexington, Ky.; a member of the American Medical Association; in 1905 and 1906 bacteriologist at the Eastern Kentucky Hospital for the Insane, Lexington; physician to the Orphan Asylum and House of Mercy, Lexington, from 1900 to 1903; surgeon Kentucky State Guard from 1902 to 1904; died at his home in Lexington, March 24, from acute atrophic cirrhosis of the liver, aged 48. The Fayette County Medical Society held a special meeting, March 25, to take action on the death of Dr. Lewis.

Loran Lester Palmer, M.D. Bellevue Hospital Medical College, 1866; McGill University, Montreal, 1867; aurist to the Western Hospital and aurist and laryngologist to Grace Hospital, Toronto; for fourteen years surgeon-major of the Queen's Own Rifles of Canada; a member of the Ophthalmological Society of Great Britain; who retired from practice in Toronto in 1906; died at his home in Grimsby, Ont., March 14, from cerebral hemorrhage, aged 65.

Josiah Lockhart Campbell, M.D. Winchester (Va.) Medical College, 185—; a Confederate veteran and at one time division surgeon in that service; representative in the legislature from Shenandoah County, Va., after the close of the war; for nearly fifty years a practitioner of Woodstock, Va., and later a resident of Nowata, Okla.; died at the home of his daughter in that city, February 12, from disease of the bladder, aged 77.

George Morton Coon, M.D. Rush Medical College, 1883; a member of the American Medical Association; clinical instructor in genito-urinary diseases in the University of Minnesota, and surgeon in the National Guard in the state; dermatologist to the City and County Hospital, St. Paul, and once deputy coroner of Ramsey County; died at his home in St. Paul, March 20, from cerebral hemorrhage, aged 51.

John Henry Neff, M.D. University of Virginia, Charlottesville, 1870; New York University, New York City, 1871; a member of the Virginia Examining Board from 1884 to 1890 and appointed a member of the Virginia State Board of Health in 1896; for many years a practitioner of Harrisonburg; died at his home in University, Va., March 18, from cerebral hemorrhage, aged 68.

Joseph C. Gifford, M.D. Rush Medical College, 1870; a veteran of the Civil War; a member of the Indiana State Medical Association and one of the oldest practitioners of Brazil; secretary of the board of health for two years, and for fourteen years a member of the city council; died at his winter home at Indian Beach, Sarasota, Fla., March 21, from uremia, aged 69.

Frank Linsley Ives, M.D. College of Physicians and Surgeons, New York City, 1871; a member of the Medical Society of the State of New York and a specialist on diseases of the throat of New York City; for many years a member of the visiting staff at the New York Eye and Ear Infirmary; died at his home in New York City, March 22, aged 63.

John Reese Owen, M.D. University of Louisville, Ky., 1872; for many years a member of the American Medical Association; a member of the Kentucky State Medical Association; a Confederate veteran; local surgeon of the Illinois Central Railroad at Arlington, Ky.; died at the home of his son in that place, March 6, from heart disease, aged 72.

Leroy G. Boyd, M.D. Louisville (Ky.) Medical College, 1900; a member of the Indiana State Medical Association; for several years a practitioner of Tunnelton, Ind.; who was operated on for the relief of cholecystitis in February at the Jewish Hospital in Louisville; died at his home in Bedford, March 20, from postoperative dilatation of the stomach, aged 37.

William J. Bunch, M.D. University of Tennessee, Nashville, 1884; formerly president of the Lee County (Ark.) Medical Society and a practitioner of La Grange and local surgeon of the St. Louis, Iron Mountain and Southern Railroad; for several years in practice at Hot Springs, Ark.; died at his rooms in that place, March 17, aged 50.

Robert Penniel Boucher, M.D. Victoria College, Coburg, Ont., 1869; Bellevue Hospital Medical College, 1870; a member of the Provincial Board of Health of Ontario; a member of the Peterboro Board of Education and past president of the Peterboro Club and of the Peterboro Medical Association; died at his home, March 17, aged 64.

Walter Henry Vilas, M.D. Rush Medical College, 1899; city physician and a member of the board of education of El Paso, Texas, for several years and also physician of El Paso County; visiting physician to the Hotel Dieu; who had been living in California for four years past; died at his home in Taft, March 12, aged 34.

Albert Plummer, M.D. Medical School of Maine, Brunswick, 1867; formerly of Hamilton and Racine, Minn.; assistant surgeon of the Tenth New Hampshire Infantry during the Civil War; a member of the Minnesota legislature in 1882 and 1883; died at his home in Rochester, Minn., March 20, aged 71.

John W. Crismond, M.D. Cincinnati Physio-Medical College, 1873; of Anderson, Ind.; a member of the Indiana State Medical Association and Mississippi Valley Medical Association; a veteran of the Civil War; died in St. John's Hospital, Anderson, February 24, from cerebral hemorrhage, aged 65.

William T. Graves (license, Ky., twenty-eight years of practice, 1894); a member of the Kentucky State Medical Association and formerly president of the Carlisle County Medical Society; a practitioner for forty years; died at his home near Bardwell, March 19, from uremia, aged 63.

Adelbert Wesley Martin, M.D. University of Michigan, Ann Arbor, 1901; a member of the American Medical Association; of Howard City, Mich.; and proprietor of a hospital in that place; died March 19, from cerebral hemorrhage, while making a professional call near Howard City, aged 38.

Levin W. Brown, M.D. New York Homeopathic Medical College, New York City, 1865; Willamette University, Salem, Ore., 1876; a member of the Oregon State Medical Association and a pioneer practitioner of Eugene; died suddenly in that city, March 14, from heart disease, aged 67.

Caleb Columbus Conway, M.D. College of Physicians and Surgeons, Baltimore, 1886; formerly a clergyman of the Methodist Episcopal Church, and for about twenty years a resident and school director of Whiteley, Pa.; died at his home in Garard Fort, March 16, aged 64.

Nelson Edwards Metcalfe, M.D. Barnes Medical College, St. Louis, 1902; a member of the Missouri State Medical Association; and president of the Maplewood Physicians' Club; died at his home in Maplewood, near St. Louis, March 23, from nephritis, aged 57.

Jonathan Erskine Lamb, M.D. Rush Medical College, 1881; for thirty years a resident and for three years secretary of the board of education of Wahoo, Neb.; for three years coroner of Saunders County; died at his home, March 14, from heart disease, aged 69.

John R. Young, M.D. Hahnemann Medical College, Chicago, 1872; once president of the Central New York Medico-Chirurgical Society; a veteran of the Civil War; died at his home in Liverpool, N. Y., March 15, from cerebral hemorrhage, aged 70.

Meredith Walton Henry, M.D. Eclectic Medical Institute, Cincinnati, 1857; for thirty-six years a practitioner of Waelder, Texas; a veteran of the Civil War; died at the home of his nephew in Waelder, March 12, from senile debility, aged 81.

William Thomas McNary, M.D. Hospital College of Medicine, Louisville, 1889; a member of the American Medical Association; formerly a practitioner of Madisonville, Ky.; died at his home in San Jose, Cal., March 25, aged 63.

James Taylor White, M.D. University of California, San Francisco, 1888; Jefferson Medical College, 1890; for several years surgeon in the United States Revenue Cutter Service; died at his home in Oakland, Cal., March 19, aged 45.

Alonzo D. Hill, M.D. Miami Medical College, Cincinnati, 1866; assistant surgeon in the Confederate service throughout the Civil War, and since that time a practitioner of Dexter, Mo.; died suddenly at his home, March 24, aged 75.

J. E. Stone, M.D. Missouri Medical College, St. Louis, 1853; a Confederate veteran; for more than twenty years a member of the city council of Forrest City, Ark., and twice mayor; died at his home in Forrest City, March 15, aged 73.

John R. Walter, M.D. University of Louisville, Ky., 1876; of Little Rock, Ark.; formerly coroner of Pulaski County, who was operated on a year ago for appendicitis; died in St. Vincent's Infirmary, Little Rock, March 19; aged 60.

Charles Clyde Rayburn, M.D. University of Pennsylvania, Philadelphia, 1901; formerly of Kewanee, Ill.; a veteran of the Spanish-American War; died at his home in Colorado Springs, Colo., March 19, from tuberculosis, aged 39.

Frank Hall Murdock, M.D. University of Michigan, Ann Arbor, 1873; a member of the American Medical Association; formerly a practitioner of Bradford, Pa.; died in his apartment in the Hotel Schenley, Pittsburgh, March 24.

Tabor R. Washburn, M.D. Keokuk Medical College, College of Physicians and Surgeons, 1901; a member of the American Medical Association; of Donnellson, Iowa; died at his home, March 21, from cerebral hemorrhage, aged 42.

Patrick Henry McMahon, M.D. University of Vermont, Burlington, 1894; a member of the American Medical Association and Burlington and Chittenden County Clinical Society, died at his home in Burlington, Dec. 14, 1911, from angina pectoris, aged 58.

Jonathan B. Clark, M.D. University of Pennsylvania, Philadelphia, 1860; a member of the Indiana State Medical Association, and a pioneer physician of Wayne County, Ind.; died at his home in Economy, March 21, aged 75.

Frank M. Cummins, M.D. New York Homeopathic Medical College, New York City, 1888; of Warwick, N. Y.; died recently in Hahnemann Hospital, New York, after an operation for the removal of gall-stones, aged 50.

James Sylvester Munger, M.D. Philadelphia University of Medicine and Surgery, 1868; College of Physicians and Surgeons, Toronto, 1869; of Rodney, Ont.; died at his home, March 13, from senile debility, aged 81.

John Harry Trout, M.D. University of Pennsylvania, Philadelphia, 1887; a druggist and vice-president of the Sunset Drug Company, Los Angeles, for many years; died at his home in that city, March 20, aged 51.

John B. Menzies, M.D. McGill University, Montreal, 1898; of Lachute, Que.; while responding to a professional call at Harmington, March 19, was caught in a heavy blizzard and died from cold and exhaustion.

Frederic Alexander Campbell, M.D. College of Physicians and Surgeons, Chicago, 1902; of Grangeville, Ida.; died March 18, in a hospital at Monrovia, Cal., from septicemia, due to an operation wound, aged 33.

William J. Riggs, Western Reserve University, Cleveland, 1864; for nearly forty years a practitioner of Pittsburgh; died at his home in East End, Pittsburgh, January 14, from lobar pneumonia, aged 71.

John Nicolai, M.D. Northwestern University Medical School, 1861; for many years a clergyman of the Evangelical Church; died at his home in Schewaing, Mich., March 24, from senile debility, aged 94.

James Richardson Phelps (license, Mass., years of practice); for twenty-five years a practitioner of Dorchester, Boston; died at his home, March 16, from pneumonia, aged 74.

A. English Willis, M.D. Louisville (Ky.) Medical College, 1894; a practitioner of Apalachicola, Fla., for fifteen years; died at his home in Greenwood, Fla., February 27, aged 43.

George Blazier Dickson, M.D. Jefferson Medical College, 1911; intern in the South Side Hospital, Pittsburgh; died at the home of his parents in Edgewood, March 18, aged 22.

Benjamin Gough, M.D. Medical College of Virginia, Richmond, 1865; of Baltimore; a Confederate veteran; died at the Confederate Soldiers' Home in that city, March 13.

Frederick Castalucci, M.D. University of Colorado, Boulder, 1909; of Denver; died at the home of his parents in Roseto, Pa., March 9, from tuberculosis, aged 26.

Thomas O'Brien, M.D. Western Reserve University, Cleveland, 1884; of Cleveland; died in St. Alexis' Hospital in that city, March 15, from uremia, aged 60.

J. S. Wiley, M.D. Jefferson Medical College, 1865; formerly of Madisonville, Tex.; died at the home of his daughter in Eldorado, Okla., March 11, aged 63.

Charles Ethan Allen Hazen (license, Vermont); a practitioner for thirty-two years; died at his home in Chester Depot, Vt., January 6, aged 61.

Theodore Frantz, M.D. Louisville (Ky.) Medical College, 1891; died at his home in Louisville, March 13, from nervous breakdown, aged 47.

William H. Geddy, M.D. University of Wooster, Cleveland, 1885; died at his home in Nokomis, Ill., March 18, from senile debility, aged 87.

Lewis J. Davis, M.D. Medical College of Ohio, Cincinnati, 1880; died at his home in Chicago, March 23, from heart disease, aged 73.

Herbert F. Praasch, M.D. Rush Medical College, 1902; died at his home in Chicago, January 31, from intestinal obstruction, aged 33.

Elkanah D. Williams, M.D. Memphis (Tenn.) Medical College, 1894; died at his home in Nacogdoches, Tex., March 15, aged 46.

Benjamin Drew De Kalb, M.D. Jefferson Medical College, 1865; died at his home in De Kalb, Ia., March 20, aged 70.

Finis M. Perkins, M.D. Jefferson Medical College, 1866; died at his home in Elkton, Ky., March 19, aged 69.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

ZYMOTOID

A Fraud of the Liquozone-Oxytonic-Septicide Type

Dr. Arnold's Zymotoid, a nostrum manufactured by Arnold's Zymotoid Company, Rockford, Ill., is claimed to be an "antiseptic, germicide and antiphlogistic" which "has absolutely no peer in medicine." According to the statements of the manufacturer, Zymotoid is "successfully employed not only as an external dressing on all wounded and diseased surfaces, but in all zymotic conditions wherein a reliable antiseptic and germicide is needed internally." And in telling physicians of the great value of Zymotoid the company says:

> "We assured them that if they would simply place Zymotoid 'next' to any wounded surface — and nothing else — they would have no inflammation, no suppuration, no infection or blood poison. Its prompt use in all cases where such trouble arises gives immediate and certain relief."

This is a large contract to be undertaken by Zymotoid — or any other preparation — which, as will be shown, consists principally of boric acid and water. The company also appends to its announcement concerning Zymotoid a number of the usual testimonials and a lot of alleged "case reports."

Zymotoid seems to be exploited principally by circulars addressed to physicians and by agents who attempt to sell it to physicians. They also try to work factories and other large employers of labor. In their circular to physicians they claim that "Zymotoid is strictly ethical." And "we publish its composition." The composition given is: "sulphur, niter, cinnamon and boric acid in gaseous solution." It is also claimed to be "a chemical compound—not a mixture—which is wholly non-toxic and can be used as freely as desired internally absolutely without harm to the smallest child." On the label of the Zymotoid package is the following:

> "Zymotoid is a concentrated chemical compound consisting of the solids and gases of sulphur, potassium nitrate, cinnamon and carbon held in a solution of boric acid."

A specimen of Zymotoid was examined by our chemists and their report follows. As will be seen, it is simply another fraud of the Liquozone-Oxytonic-Septicide type.

LABORATORY REPORT ON ZYMOTOID

Zymotoid is a pale yellow liquid having a strong odor like sulphur dioxid. No odor suggestive of cinnamon was observed even after the sulphur dioxid had been fixed by the addition of an alkali. Qualitative tests indicated the presence of boric acid, sulphuric acid, sulphur dioxid and traces each, of a nitrate, potassium and some unidentified organic matter. Alkaloids, cinnamic acid, glycerin and soaps were absent. From the results of the quantitative examination it is concluded that the composition of Zymotoid is essentially as follows:[1]

Boric acid (H_3BO_3)	0.637 gm.
Sulphur dioxid (SO_2)	0.129 gm.
Sulphuric acid (H_2SO_4)	0.048 gm.
Potassium nitrate	trace
Unidentified organic matter	trace
Water (by difference) to make	100 c.c.

The analysis shows that but for the presence of boric acid the composition of Zymotoid is similar to other fraudulent "microbe killers" which have been exploited in recent years and of which some have been declared misbranded by the federal government. For example, "Radam's Microbe Killer"[2] was found by the federal chemists to be composed of water, containing small quantities of sulphur dioxid and sulphuric acid. "Liquozone," another nostrum which was widely exploited a few years ago, is said to have a similar composition.[3] According to an analysis made at the North Dakota Agricultural Experiment Station,[4] "Oxytonic" has a similar composition. The nostrum, "Septicide," was found by the federal chemists to be composed of water with small quantities of sulphur dioxid, sulphuric acid and a trace of a nitrate.

THE NATIONAL FORMULARY

Pharmaceutically Useful But Not a Therapeutic Necessity

"The National Formulary," says the *Journal of the Missouri State Medical Association*, "was conceived when it was not uncommon for a physician to combine a half dozen fluidextracts in one prescription, when the druggist carried twenty-five or more different kinds of quinin, iron and strychnin pills, and when it was considered the proper thing to prescribe salts such as potassium bromid in the form of sickening sweet-salty, hair-oil flavored, brilliantly colored elixirs. There were no standard formulas for these fluidextracts, pills and elixirs; therefore each pharmacist was obliged to use his judgment in their preparation. As it was likely that one pharmacist might flavor his elixir with a combination of cloves and cinnamon and color it yellow, and another flavor it with orange peel and coriander and color it red; and as the same patient might get his prescription filled alternately at these two stores, we may imagine to what annoyances the pharmacist was subjected. In this dilemma

1. The details of the analysis will appear in the annual reports of the Chemical Laboratory.
2. THE JOURNAL A. M. A., July 16, 1910, p. 235.
3. THE JOURNAL A. M. A., March 28, 1908, p. 1065.
4. THE JOURNAL A. M. A., Jan. 1, 1910, p. 63.

the National Formulary was devised. As a result all pharmacists to-day use the same alcoholic menstruum in making their fluidextracts of fleabane, pipsissewa and other indifferent drugs which a few physicians still use occasionally; they make their pills of a certain size and with a certain coating; they impart the same color and flavor to the potassium bromid elixir used by certain physicians who forget their teachers' advice and still prescribe the drug in the form of this nasty mixture. The National Formulary may therefore be designated as pharmaceutically useful.

"We hold, however, that the book is not a therapeutic necessity. The physician who can get along without it is to be congratulated. The many complex formulas contained in it are a credit neither to the pharmacists who devised them nor to the physicians who prescribe them. In these days of scientific thought, when physicians want to know the effect produced by each drug given and hence abstain from prescribing the old, hopeless confusions formerly in vogue, there is little need for the most of the ready-made things in the book.

"When we learned some time ago that the book was in process of revision, we were anxious to learn whether the new edition promised to be more acceptable to physicians. While a report[1] giving the scope of the next edition indicates that some of the worst combinations have been dropped, we find among the new admissions, preparations of the following drugs whose only value appears to lie in the confusion which they create in the minds of physicians when they are constituents of shot-gun proprietaries: baptisia, chionanthus, eriodictyon, cocillana, dioscorea, drosera, echinacea, euphorbia pilulifera, helonias, cataria (catnip), senecio (fleabane), trillium, cactus grandiflorus and passiflora. The list of additions also contains the following complex, unscientific and superfluous preparations: elixir formates; elixir formates compound; elixir glycerophosphates compound; elixir sodium salicylate compound; elixir of three bromids and solution of the bromids of gold, arsenic and mercury.

"Furthermore, there are a number of formulas that are evident imitations of notorious nostrums which the 'National Formulary propaganda pharmacist' will no doubt attempt to persuade physicians to prescribe.

"Finally we note that, although liquid preparations of pepsin and pancreatin are acknowledged to be pharmaceutical impossibilities, and in spite of a specific appeal from the Council on Pharmacy and Chemistry of the American Pharmaceutical Association to omit elixir digestivum compositum, the worthless imitation of a popular humbug, from the next edition it apparently has been decided to retain this preparation.

"Thus we are forced to conclude that the National Formulary, though pharmaceutically useful, is not a therapeutic necessity—in fact, therapeutics would be better off without it."

1. Pharm. Era, October, 1911, p. 437.

Enemose for Rectal Feeding

Referring to our editorial of Dec. 9, 1911, on "The Requirements of Rectal Feeding," Messrs. Fairchild Brothers & Foster say in a recent communication: "You say 'Our manufacturers could wisely direct their energies toward the production and investigation of a series of food products which will meet the requirements briefly outlined above'; this we have been doing for some years. Why not give us a chance?"

We are very glad to note the readiness of this firm to meet the needs of the medical profession and especially the assiduity and success with which it has cultivated the field of the digestive ferments. In enemose, which has now been accepted by the Council on Pharmacy and Chemistry (N. N. R., 1912, p. 137) the firm has prepared a mixture of protein derivatives and carbohydrates which essentially corresponds to the need expressed in the editorial quoted. It remains to attack the problem of a supply of fats which may be regarded as essential to the long continuance of colonic alimentation.

Correspondence

Error Alleged in Cancer Statistics

To the Editor:—It seems most unfortunate, at a time when most improvement in our success in the treatment of cancer must depend on the education and cooperation of both the profession and the laity, for an author to express such opinions as some of those in the article on "Elements of Error in Statistics of Breast Amputation for Cancer," by W. S. Thorne of San Francisco (THE JOURNAL, Feb. 17, 1912, p. 459). The whole attitude of the article is objectionable in undermining confidence in well-established statistical facts. The points made by the author seem to have little or no support in his article.

1. "A certain percentage of tumors (clinically) diagnosed as malignant disappear spontaneously." The cases cited in proof of this would merely show that errors in the clinical diagnosis of breast tumors are often made, which needs no argument.

The second point is pure assumption that such tumors when removed are classified as malignant. I know of no statistical study of the results in operation for breast cancer that are not based on microscopic diagnoses.

3. "The accepted percentage of breast tumors classified as malignant is too high." This is a mere assertion, contradicted by the later acceptance of the statement that 85 per cent. of breast tumors are actually malignant and the remaining 15 per cent. are liable to take on malignancy.

How can any operating surgeon publish the statement "that only 10 to 20 per cent. of 40 per cent. recoveries after radical breast operations are free from recurrence after three years"? If only 40 per cent. of our patients survived a radical breast operation and only 4 to 8 per cent. remained well after three years, the cause of the surgery of malignancy would certainly be forlorn. The mortality of the Meyer and other allied operations is practically nil, there being only an occasional accidental death and the non-recurrence rate after three years ranges, according to the microscopic type of cancer, from 25 in scirrhus to 60 per cent. in adenocarcinoma.

The author's quotations from the article of Dr. Gibson contain a rational summary of the accepted opinions of the present, but after adopting this, the article proceeds to dissent diffusely. Just what the author means by the following is not clear:

"I wish to emphasize my position as to the radical operation in carcinoma. It is mandatory without exception, but disfiguring operations are to be avoided unless unquestionably necessary."

All radical breast operations unite in removing the whole breast, its overlying skin, the pectoral muscles and axillary contents best in one mass without section, and it is difficult to see how one can be more disfiguring than another. The most common operative error is in not removing enough tissue in the attempt to obtain better cosmetic results. All surgery against malignancy must first remove the tumor with a large enough surrounding field to insure against local recurrence, and only after this is accomplished can cosmetics be considered.

The author makes some disparaging statement as to microscopic diagnosis, but his only citation as to facts observed is a microscopic diagnosis of giant-celled sarcoma in a tumor which after removal confirmed the diagnosis by non-recurrence.

It seems to me that the only reasonable position to take in this matter is, as quoted from Dr. Gibson, that 85 per cent. of all breast tumors in women of over 35 are or will be malignant, and hence all breast tumors at such ages should be removed at once and radical operation done in all showing microscopic malignancy.

The clinical diagnosis of malignancy is unnecessary and often impossible, the mere presence of a tumor being the indication for operation. The great majority of malignant tumors can be cured by a sufficiently early operation, but when a clinical diagnosis of malignancy can be made, the prognosis becomes greatly worse, so our hope for better things in this

line of work depends on the early reference of all breast tumors to the surgeon who is equipped for microscopic diagnosis during the operation. To secure this desired result the laity must be educated and the general profession must accept and act on the dicta that early operation is the first indication, and that such early operation must be radical, as the first operator generally seals the fate of the cancer victim.

J. CLARK STEWART, M.D., Minneapolis.

The Army Canteen

To the Editor: The letter of Dr. A. S. Condon in THE JOURNAL, March 9, furnishes a striking illustration of a common misapprehension of the act of Congress (1901) abolishing the sale of beer in the army canteen. Dr. Condon describes the "canteen" as the soldiers' club where "the boys" met to play cards or billiards or "took a turn in the gymnasium" or read in the library or wrote letters home.

The "soldiers' club" part of the canteen *has never been abolished by the act of Congress.* Congress has voted appropriations amounting to $2,000,000 or more for increasing the attractions and recreations of the soldiers' clubs. Thousands of dollars of this appropriation have been spent in fitting up gymnasiums and providing outfits for bowling, billiards and other recreations. All that Congress abolished was the sale of beer and wine in the canteen.

According to the previous army regulations permitting the sale of wine and beer, that sale was to be conducted in a separate room, used for no other purpose. That room—the bar room—was the only one closed by the act of Congress.

And yet Dr. Condon says that one day an order came from Washington to suspend the canteen, store the billiard tables and other impedimenta away and vacate the *rooms.*

Any order of that kind was wholly without warrant in the act of Congress abolishing the sale of beer; nor was it necessitated at any well-managed post exchange by lack of funds consequent on stopping the sale of beer, for there were profits from other articles.

Major Reynolds of the Department of Dakota, for instance, said (Report of the War Dept. 1902-3) the year after the sale of beer was abolished: "The exchanges are fulfilling their purpose and making money."

The report of the inspector-general of the Army for 1903—two years after the abolition of the sale of beer—gave the following clear picture of the business side of the post exchange, showing that it was not abolished when the sale of beer was stopped. He says: "The exchange is a growing institution of post life. It is not only the soldier's club, but it is the medium through which all the necessities of family life for the soldiers and their families are obtained. A properly supervised exchange furnishes at low cost all kinds of fabrics for wear as well as notions and in later years it has extended to the furnishing of vegetables, fruits, butter, milk and eggs. There is one exchange on the Pacific coast that furnishes a fine tailoring establishment for the benefit of the officers and men."

The report of the financial condition of the post exchanges for the year ending June 30 1902, gave the receipts of the exchanges for that year as $1,124,542.50, which also shows that they continued to do a large volume of business after the sale of beer was discontinued.

Dr. Condon's account of the way the order to close the canteen was construed is another evidence that the term "canteen" has been used and understood by army officials in two different senses. And there appears to have been a cause for such misunderstanding in the different constructions given the term in the official reports of the War Department.

Thus in the report for 1899, page 275 (House Document, Vol. 2, No. 2) is the following description of the "canteen." "The army canteen, officially known as the post exchange, had its origin in our service at Vancouver Barracks in 1880, but it was not until February, 1889, that the institution was recognized by the War Department and rules and regulations for its establishment and government were published to the Army. The purpose of the canteen as officially announced is to supply troops with goods at a low rate of profit and to afford recreation and amusement to all enlisted men."

This takes the word "canteen' in the broad sense of soldier's club. But the adjutant-general, the same year, uses in his report the wording of the army regulation establishing the post exchange, in which the word "canteen" is applied only to the room in which beer and light wines are sold. Other "features" of the exchange named in this regulation are (a) a well-stocked general store, (b) a well-kept lunch counter, (c) reading and recreation rooms supplied with books, periodicals, billiard and pool tables, bowling alley, etc.

Further evidence of the different senses in which the word was understood appears in the opinions collated by the then adjutant-general from army officers concerning the working of the "canteen" feature of the post exchange, and the probable effect of its abolition. These opinions have been widely quoted as showing that a preponderating number of the officers were in favor of the sale of beer. That many of them understood the adjutant-general's question about the "canteen feature" to mean the whole post exchange is evident from replies like the following:

"The canteen is the enlisted man's club, a pleasant and popular resort."

"The merchants of the neighboring town would have unlimited extortion on sales of many articles now procured through the exchange, if that cooperative store were closed there."

And even the superintendent of the West Point Military Academy at that time took the word canteen in its broad sense, for he says:

"To abolish the post exchange will be to bring back to the Army many of the evils from which for years past it has been free."

It is more than probable therefore, in fact Dr. Condon's letter may be taken as evidence in one case at least, that the order to close the "canteen" has been erroneously taken, no one knows how often, to mean to close the whole exchange, recreation rooms and all. It is no wonder the soldiers resented such a measure and that well intentioned officers opposed it. It is clear also that even to-day Dr. Condon and others are still laboring under this misapprehension. That it may speedily be corrected it is necessary to keep reiterating:

The soldier's club has never been abolished by act of Congress. All that Congress ordered closed was one feature of the soldier's club—the beer or wine bar.

HENRY O. MARCY, Boston,
Late Surgeon and Medical Director, U.S.A.

Crutcher Not in League for Medical Frauds

To the Editor:—Please state in your columns that I have never had any connection, direct or indirect, with the National League for Medical Frauds, or with any association with an allied name or purpose.

HOWARD CRUTCHER, Roswell, N. Mex.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THYMOL AND HOOKWORM DISEASE IN NURSING MOTHERS

To the Editor:—Is there any contra-indication to the administration of thymol to a nursing mother for the treatment of hookworm disease? I have two severe cases, in one of which the mother nurses a child 1 month old, the other patient nursing one 15 months old. The latter child is just recovering from bronchopneumonia.

THOMAS J. TUDER, Keokee, Va.

ANSWER.—We are unable to find any statements with regard to the administration of thymol to nursing women. As the remedy, however, when given for hookworm disease, is not calculated to be absorbed, it is probable that no harm to the infant would result, since few remedies are excreted in the milk. Thymol is regarded as contra-indicated in pregnancy. In the case of a nursing mother it would be prudent to remove the child from the breast during the treatment and until the

thymol has been evacuated. In the administration of thymol, oils, such as castor oil and alcoholics in any form, should be scrupulously avoided. Not much water should be drunk and the thymol should be expelled from the intestine by a saline purge in from two or three hours after its administration, because when it has had time to pass the small intestine, it is no longer of service for the destruction of the worms and the danger of poisoning increases with its length of stay in the intestine.

LIQUID COURT-PLASTER

To the Editor:—I wish to know how the advertised preparations "Liquid Court-Plaster" and "New Skin" may be made. They seem much like flexible collodion but are not so contractile. C. L. H.

ANSWER.—Martindale and Westcott (*Extra Pharm.* Ed. 14, p. 282) state that a solution of pyroxylin in acetone is called "Filmogen" and that "New Skin" is a somewhat similar preparation, but we are unable to give exact formulas. According to the *Druggists Circular*, if soluble gun cotton is dissolved in acetone in the proportion of about 1 dram by weight of the former to 35 or 40 drams by volume of the latter, and ½ dram each of castor oil and glycerin be added, a colorless, elastic and flexible film will form on the skin when the liquid is applied. Unlike ordinary collodion, this preparation does not readily peel off. If tinted very slightly with alkanet and saffron it can be made to assume the color of the skin, so that when applied it is almost invisible.

The following is given as a working formula:

Pyroxylin	1 ounce
Amyl acetate	5 ounces
Acetone	15 ounces
Balsam of fir	2 drams
Castor oil	2 drams
Oil of cloves	15 minims

Dissolve the pyroxylin in the amyl acetate and the acetone, and add the other ingredients, avoiding fire or light.

THE USE OF AUTOGENOUS VACCINES IN SUPPURATION

To the Editor:—Please give me the results obtained from autogenous vaccines. The case I have in mind was a case of appendicitis (operation performed seven weeks ago, with drainage. The wound still drains freely, there being little or no odor to the discharge. A smear examined last week showed no tubercle bacilli; there were Gram-positive diplococci that corresponded to pneumococci, a few pus-cocci and many pus-cells; no red blood-cells. What can I expect of vaccines in this case?

R. P. GRIMM, M.D., Glasford, Ill.

ANSWER.—The results obtained from the use of autogenous vaccines in many conditions are very good. In the case mentioned, however, it is more than likely that some foreign substance is present which keeps up the suppuration. In cases of prolonged suppuration of this kind it is very common to find a small fecal concretion, which has escaped from the perforated appendix into the abscess cavity, or a particle of fecal matter or a piece of silk, if silk was used to sew or ligate with, or a piece of chromic catgut or a small thread from the gauze packing, etc. In the absence of foreign matter of any kind and of an infection such as tuberculosis, actinomycosis or carcinoma, the discharge will almost certainly cease and the wound heal without the use of vaccines.

HAMLIN'S WIZARD OIL

To the Editor:—Can you give me any information regarding Hamlin's Wizard Oil, its composition and its therapeutic value, if it has any? S. M. LONG, M.D., Fresno, Cal.

ANSWER.—We know of no analysis of Hamlin's Wizard Oil, but several alleged formulas for this nostrum have been published. They agree in all minor details. The following from Hiss' "Thesaurus of Proprietary Preparations" is an example:

Spirit of camphor	1 fluidounce.
Spirit of ammonia	4 fluidrams.
Chloroform	4 fluidrams.
Oil of sassafras	4 fluidrams.
Oil of cloves	2 fluidrams.
Oil of turpentine	4 fluidrams.
Alcohol, enough to make	5 fluidounces.

The probability is that the formula changes from time to time. A thousand variations in the combination of camphor, ammonia, chloroform, oil of turpentine and alcohol can be made—including addition, subtraction and multiplication—and liniments will result; and liniments belong to the past.

The Public Service

Medical Department, U. S. Army

Changes during the week ended March 30, 1912.

Brooks, William H., major, granted six months' leave of absence on surgeon's certificate of disability.

Stone, Frank P., dental surgeon, reports arrival at Fort Caswell, N. C., for temporary duty.

Dear, William R., lieut., granted twenty days' leave of absence.

Brown, Ira C., M.R.C., relieved from duty at Fort Lawton, Wash., and ordered to Schofield Barracks, Hawaii, for duty.

Van Poole, G. McD., major, granted two months' leave of absence.

Macy, Frederick S., captain, granted three months' leave.

Slater, Ernest F., M.R.C., ordered to return from this city to his proper station, Fort St. Philip, La.

Johnstone, James F., lieut., is detailed for duty with troop B, 1st cavalry, en route to and at the Sequoia National Park, Ga.

Peterson, James J., M.R.C., resignation accepted, to take effect March 26.

Stephenson, William, lieut. col., in addition to his other duties will report to commanding general, eastern division, for duty as chief surgeon of that division on the retirement from active service of Colonel John Van R. Hoff, medical corps.

Feely, James F., acting dental surgeon, left Fort McHenry, Md., en route to Fort Howard, Md., for temporary duty.

Wilson, Elsworth, M.R.C., ordered to proceed from Fort Huachuca, Ariz., to Nogales, Ariz., for temporary duty with troops, relieving Rozier C. Bavly, lieut., who will return to his proper station.

Kendall, William P., lieut. col., leave extended twenty days.

Bushnell, George E., colonel, granted three months' leave.

Medical Corps, U. S. Navy

Wheeler, W. M., surgeon, ordered to duty, marine barracks, and marine recruiting duty, Norfolk, Va.

Sheldon, L. L., Ledbetter, P. B., Lanning, R. H., Jones, R. F., and Beeching, C. L., asst. surgeons, detached from naval medical school and ordered to Asiatic station.

Treiby, C. E., A. A. surgeon, ordered to naval recruiting station, Baltimore.

Duhigg, J. T., asst. surgeon, directed to await orders when discharged from treatment at the Naval Hospital, Washington.

Phelps, J. R., P. A. surgeon, detached from the *Solace* and ordered home to await orders.

Sheldon, L. L., asst. surgeon, orders of March 23 revoked; detached from the naval medical school and ordered to the *Solace*.

Elliott, M. S., surgeon, detached from the *Utah* and ordered to the *Florida*.

Dunn, H. A., surgeon, detached from the *Florida* and ordered to the *Utah*.

U. S. Public Health and Marine-Hospital Service

Changes for the fourteen days ended March 27, 1912.

Gassaway, J. M., surgeon, relieved from duty at the Marine Hospital, San Francisco, and directed to proceed to Cairo, Ill., and assume command of the service.

Woodward, R. M., surgeon, relieved from duty at Detroit and directed to proceed to San Francisco and assume command of the Marine Hospital at that port.

Cobb, J. O., surgeon, detailed to represent the service at the meeting of the Medical Society of the Missouri Valley, to be held at Colfax, Iowa, March 21-22, 1912.

Nydegger, J. A., surgeon, granted one month's leave of absence, on account of sickness, from April 1, 1912.

Wickes, H. W., surgeon, relieved from duty at Cairo, Ill., and directed to proceed to Boston and report to the medical officer in command for duty and assignment to quarters.

Lumsden, L. L., P. A. surgeon, detailed to represent the service at the meeting of the health officers of Tennessee to be held at Nashville, Tenn., April 2-4, 1912.

Corput, G. M., P. A. surgeon, authorized to visit New Orleans on business connected with the station twice each month during the period April 1 to June 30, 1912.

Francis, Edward, P. A. surgeon, detailed to inspect the Slee laboratories at Swiftwater, Pa., with a view to granting licenses for the sale of their products.

Collins, G. L., P. A. surgeon, granted one month's leave of absence from March 15, 1912.

Frost, W. H., P. A. surgeon, directed to proceed to Baltimore for conference with health authorities and investigation of outbreak of so-called sore throat.

Krulish, E., P. A. surgeon, relieved from temporary duty in Washington, D. C., and directed to proceed to Juneau, Alaska, for duty under this service with additional duties to be performed under the direction of the bureau of education, department of the interior.

Grimm, R. M., asst. surgeon, detailed to make epidemiologic studies of pellagra in Georgia and South Carolina.

Porter, J. Y., quarantine inspector, directed to proceed to Mayport, Fla., to inspect the operations of the quarantine service at that port.

Gill, S. G., A. A. surgeon, directed to proceed to Savannah, Ga., and assume temporary charge of the quarantine station during the absence on official business of Assistant Surgeon C. M. Fauntleroy.

Tappen, J. W., A. A. surgeon, directed to proceed to Douglas, Naco, Nogales and Tucson, Ariz., to inspect the conduct of the medical examination of arriving aliens at these ports.

Board of medical officers convened to meet at the bureau Tuesday, March 26, 1912, at 10 o'clock a. m., for the examination of Assistant Surgeons Harry J. Warner and Charles M. Fauntleroy, to determine their fitness for promotion to the grade of passed assistant surgeon. Detail for the board: Assistant Surgeon-General W. J. Pettus, chairman; Assistant Surgeon-General J. W. Trask; Passed Assistant Surgeon A. M. Stimson, recorder.

Board of medical officers convened to meet at the bureau Monday, April 8, 1912, at 10 o'clock a. m., for the examination of candidates for admission to the service. Detail for the board: Surgeon C. P. Wertenbaker, chairman; Surgeon W. G. Stimpson; Passed Assistant Surgeon Joseph Goldberger, recorder.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POSTGRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

THE SMOOT BILL

March 22, 1912, Mr. Smoot introduced the following bill (S. 5972) in the U. S. Senate. It was read twice and referred to the Committee on Public Health and National Quarantine:

A BILL TO ESTABLISH A PUBLIC HEALTH SERVICE AND FOR OTHER PURPOSES

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Public Health and Marine-Hospital Service of the United States shall hereafter be known and designated as the United States Public Health Service, and in addition to the administrative divisions now authorized by law there is hereby created a division of sanitary engineering and a division of child hygiene, and the division of vital statistics of the Bureau of the Census is hereby transferred from the Department of Commerce and Labor and made a division of the United States Public Health Service: *Provided*, That nothing in this act contained shall be held or construed to discharge or reduce in rank, grade, or pay any officer or employee of the Public Health and Marine-Hospital Service or the division of vital statistics of the Bureau of the Census.

SEC. 2. That there shall be an Assistant Secretary in the Treasury Department, appointed in the same manner and whose salary shall be the same as fixed by law for the other assistant secretaries, who shall be known and designated as the Assistant Secretary for Public Health, and whose duty it shall be to supervise, under the Secretary of the Treasury, the administration of the general operations and the expenditures of the United States Public Health Service: *Provided*, That the division of sanitary engineering shall be in charge of a competent sanitary engineer who shall be appointed in the same way and receive the same compensation as the chiefs of division of the hygienic laboratory.

SEC. 3. That all laws pertaining to the Public Health and Marine-Hospital Service of the United States or the division of vital statistics of the Bureau of the Census shall hereafter apply to the United States Public Health Service, and all regulations of the former now in force or made hereafter shall apply to and remain in force as regulations of the United States Public Health Service until changed or rescinded: *Provided*, That all properties, records, and rights pertaining to or in the possession of the Public Health and Marine-Hospital Service of the United States or the division of vital statistics of the Bureau of the Census are hereby transferred to and shall be available for use for like purposes and in like manner by the United States Public Health Service.

SEC. 4. That the United States Public Health Service shall, under the Secretary of the Treasury, be under the charge of the Surgeon-General of the aforesaid service, who shall be appointed as now provided by law and regulations, and the several divisions of the said service, with the exception of the division of sanitary engineering, shall each be in charge of an assistant surgeon general as now provided by law for the Public Health and Marine-Hospital Service: *Provided*, That the present chief of the division of vital statistics of the Bureau of the Census shall be appointed by the President, by and with the advice and consent of the Senate, as a surgeon in the United States Public Health Service.

SEC. 5. That all matters relating to personnel and accounts of the United States Public Health Service shall be administered by the division of personnel and accounts of the said service, and all accounts of moneys received and moneys expended on account of the said service shall be examined by the Auditor of the Treasury and so certified by that officer: *Provided*, That there may be employed in the United States Public Health Service such help as may be provided for from time to time by Congress.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

Eighth Month—Third Weekly Meeting

ACUTE GASTRO-ENTERIC INTOXICATION

ETIOLOGY: Season, age, surroundings, constitution, food. Bacteriology of dairy milk, bacteria found, toxins, possibility of direct contagion. Researches of Booker.

PATHOLOGY. (Macroscopic Changes): Contents of stomach and bowels, change in mucous membrane, lymphoid tissue. Severe cases, cholera infantum, intestinal contents, mucous membrane and Peyer's patches.

(Microscopic Changes): Immediate autopsy important. Changes in epithelium. Bacteria found, lymphoid tissue. Associated pathology of cholera infantum.

SYMPTOMATOLOGY, CLINICAL FORMS

SIMPLE GASTRO-ENTERIC INTOXICATION

MILD CASES: Onset gradual, fever, gastric disturbances, diarrhea, character of stools, general symptoms. Course and duration. Tendency to relapses. Terminations.

MORE SEVERE CASES: Sudden onset, restlessness, pain, fever, vomiting, stupor, prostration, diarrhea, flatus. Character and number of stools. Course and terminations of disease. Effect of age and constitution on prognosis.

TREATMENT: Preventive. Hygienic and dietetic. Medicinal.

CHOLERA INFANTUM

Preceding intestinal disorder frequent. Sudden onset, prostration, increasing fever, vomiting and purging. Character of vomited matter, of stools. Loss of fluids, relaxed sphincter, loss of weight, course of temperature and pulse. Condition in fatal cases. Spurious hydrocephalus. In patients who recover.

Treatment. Indications.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ILLINOIS: Coliseum Annex, Chicago, April 30. Sec., Dr. James A. Egan, Springfield.

NEW MEXICO: Santa Fé, April 8-9. Sec., Dr. J. A. Massie.

OKLAHOMA: Oklahoma City, April 9-11. Sec., Dr. John W. Duke, Guthrie.

WEST VIRGINIA: Parkersburg, W. Va., April 8-10. Sec., Dr. H. A. Barbee, Point Pleasant.

New Preliminary Requirements at the University of Minnesota

At a meeting held March 23, the Board of Regents adopted the following recommendations made by the executive faculty of the college of medicine and surgery, in regard to requirements for entrance and graduation of medical students:

1. REQUIREMENTS FOR ENTRANCE TO THE COLLEGE OF MEDICINE AND SURGERY AND FOR GRADUATION WITH THE B.S. AND M.D. DEGREES.

A—That all students in the college of medicine and surgery be required to secure the degree B.S. or B.A. before the degree M.D. is granted.

B—That the completion of two full years of collegiate work in this university or in any approved college, following on a four-year high-school course which includes two years of Latin, and including the subjects enumerated under C, be accepted for entrance to the college of medicine and surgery, and that this be the only statement of entrance requirements.

C—That the specified subjects in the two full years of college work required for entrance to the third year in medicine be made to include the following:

English (rhetoric)	1 year	6	credits
General inorganic chem.....	1 "	6	"
Qualitative analysis	1 "	6	"
Physics	1 "	8 or 6	"
Biology, preferably zoology.....	1 "	6	"

Modern language—A reading knowledge of German or French. This ordinarily will require one or two years (10-16 credits) of college German or one year (10 credits) of college French, depending on prior high-school training.

D—That the completion further of the third and fourth years in medicine shall entitle the student to the degree of B.S. from this university.

E—That the announcements of the six-year and seven-year combined courses given on pages 34 to 40 of the bulletin of the college of medicine and surgery for 1911-12, and as stated in the bulletin of the college of science, literature and the arts, be omitted.

2. B.S. DEGREE FOR MIGRANTS.

On the basis of the above entrance requirements the executive faculty of the college of medicine and surgery recommends that the B.S. degree be granted to students who have completed two years of work in medicine in this university after having done two years of collegiate or university work accepted as equivalent to that given in the college of science, literature and the arts of this university.

Mississippi Requires Graduation of All Applicants

A letter from Dr. W. S. Leathers, director of public health and sanitation in Mississippi, states that legislation has been secured requiring that hereafter all applicants to practice medicine in that state must be graduates of reputable medical colleges requiring four years of study, each session to be thirty-two weeks in length. This leaves only one state in the south, Tennessee, which still allows undergraduates in medicine to take the examinations for license.

Book Notices

DYKE'S AUTOMOBILE ENCYCLOPEDIA. In Forty Parts, Including a Dictionary, Index and 175 Charts. With Manikin of the Automobile, Showing How the Automobile Parts Are Assembled Into a Complete Car with All Parts Named. By A. L. Dyke, E.E. Second Edition. Cloth. Price, $3. Pp. 500. St. Louis: A. L. Dyke, 1912.

This is a practical book which will be a help, and more than worth the cost, to every automobile user. It is of special importance to the man who drives and looks after his own car. The book is divided into forty chapters, called "Instructions." Instruction 1 is the A B C of automobiles. Instruction 2 takes one a little farther into the intricacies of the car; and by the time one has read and studied the remaining chapters, one should have a fair understanding of automobiles in general. The book contains information not only with regard to the automobile itself, but also in respect to repairing, the building of garages, state laws; in fact, as the name implies, it really is an automobile encyclopedia.

AUDEL'S ANSWERS ON AUTOMOBILES FOR OWNERS, OPERATORS, REPAIRMEN. Relating to the parts, operation, care, management, road driving, carbureters, wiring, timing, ignition, motor troubles, lubrication, tires, etc., including chapters on the storage battery, electric vehicles, motorcycles, overhauling the car, etc. By Gideon Harris and Associates. Cloth. Price, $1.50. Pp. 476, with 380 illustrations. New York: Theo. Audel & Co., 1912.

It has been said that the amount of service which can be obtained from an automobile depends more on the man at the wheel than on the car itself. Certainly the cost of up-keep in the way of repair expense depends, to a very great degree, on whether the one in charge understands its mechanism and whether he is continually on the watch for loose nuts and weak spots generally. This book is intended for those who want to know their car. It is for the novice; for the one who knows nothing of motor car machinery but who wants to know something about it. The information is given in the form of questions and answers. Some one has remarked that any fool can ask a question that may take a wise man to answer. Some of the questions in this book may be regarded as "fool questions," because they are so simple. In fact, if there is any criticism to be made it is that too insignificant questions are discussed. In other words, the author goes into the most elementary matters. This, however, is not a fault when it is considered for whom the book is intended, since men knowing absolutely nothing about the mechanism have been known to buy and run cars without making any attempt to learn it. They learn by experience—a rather expensive proposition in this instance. While the greater part of the book is devoted to a discussion of the mechanism of the car itself, at the same time all subjects related to automobiling are considered, including the tire proposition in all its phases, lubrication, electricity, storage batteries, hints on running an automobile, methods of overhauling, etc.

LEITFADEN DER AKUSTIK FÜR OHRENÄRZTE. Von Dr. M. Th. Edelmann, Prof. h. c. der Kgl. techn. Hochschule, München. Paper. Price, 4 marks. Pp. 116, with 80 illustrations. Berlin: S. Karger, 1911.

Dr. Bedzold's well-known set of tuning forks and whistles, which includes all of the musical tones within the range of human perception, are made under the direction of Professor Edelmann in Munich. In this well-written book he explains the reason for the construction and the method of use of these testing instruments. Their accurate and scientific manufacture makes them a necessary part of the instrumentarium of otologists wishing to make proper hearing tests.

Medicolegal

Rights of Injured Seamen—Importance Attached to a Broken Wrist

(Wittekoppe vs. New York and Pacific Steamship Co. (U. S.), 189 Fed. R. 920)

The United States District Court, Southern District of New York, holds that Wittekoppe, who was badly bruised and had his wrist broken by a fall from a ladder, was entitled to recover $1,200 for that portion of the pain and suffering which he had endured which resulted from the unskilful and insufficient treatment which he received, and for the loss which he had suffered from the inability to earn his usual wages which had resulted from such inadequate medical treatment. The ship, at the time this accident occurred, was on a voyage from St. Lucia to Bahia Blanca, South America. She had been about three days out from St. Lucia, and was 13 days in reaching Bahia Blanca. It was evident that the bones of the wrist were broken. The captain did up the arm in splints, gave the injured man a separate room, and afforded such medical attention as was within his knowledge and power. The bones of the wrist did not properly unite, but formed a callous union, the result of which was that the hand and arm became atrophied, and the hand had for a long time afterward lost its grasping power. On the voyage the steamer passed near Para and within sight of Pernambuco, in both of which places there were adequate hospital accommodations. The court holds that it was the duty of the master to have put the injured man ashore at Para or Pernambuco, and to have had him sent to a hospital there. The general principle is well settled that a seaman is entitled to receive at the expense of the vessel proper medical or surgical attention if ill or injured while in service of the ship. The vessel is not bound to deviate from her voyage for slight injuries, and each case must be determined by its own circumstances. In this case the bones of the wrist were broken. That is a serious injury; if the bones are not properly set, a permanent disability and a restricted circulation are apt to result. The proper setting of such a fracture requires a larger degree of surgical skill than an ordinary shipmaster possesses. The master knew that the bones were broken, and, instead of putting the injured man ashore at Para or Pernambuco, or endeavoring to obtain the aid of a surgeon from a passing vessel, proceeded on the voyage to his destination, occupying thirteen days. It was claimed that the man agreed to this course, although he said that he asked, and expected, to be put ashore at Pernambuco, which the officers denied. However, the court does not think that in such a case the shipowner is exonerated even if the seaman acquiesces in not obtaining proper surgical treatment. It is the duty of the master in such a case to use his own judgment and to do what is necessary under the circumstances, and the court thinks that in this case the master was bound to know that he, with the best intentions, was not competent to so treat the broken wrist as to prevent the result which occurred.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, Atlantic City, N. J., June 4-7.

Alabama State Medical Association, Birmingham, April 16.
American Laryngological Association, Atlantic City, May 9-11.
Arizona Medical Association, Bisbee, May 7.
Association of American Physicians, Atlantic City, May 7-8.
California State Medical Society, Del Monte, April 16-18.
Florida Medical Association, Tampa, May 8-10.
Georgia Medical Association, Augusta, April 17-19.
Iowa State Medical Society, Burlington, May 8-10.
Louisiana State Medical Society, New Orleans, April 23-25.
Maryland Medical and Chirurgical Faculty, Baltimore, April 23-25.
Mississippi State Medical Association, Jackson, April 9-11.
Montana State Medical Association, Helena, May 8.
Nebraska State Medical Association, Lincoln, May 7-9.
New Hampshire Medical Society, Concord, May 8-9.
New York State Medical Society, Albany, April 16-18.
North Dakota State Medical Association, Valley City, May 8-9.
Ohio State Medical Association, Dayton, May 7-9.
Oklahoma State Medical Association, Shawnee, May 7-9.
South Carolina Medical Association, Columbia, April 16-18.
State Medical Association of Texas, Waco, May 7-9.
Tennessee State Medical Association, Chattanooga, April 9-11.

PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting held Feb. 14, 1912

The President, DR. L. JAY HAMMOND, in the Chair

The Diagnosis of Pain in the Upper Abdomen

DR. JUDSON DALAND'S paper on this subject is published in this issue of THE JOURNAL.

Surgical Indications of Trouble in the Right Upper Quadrant of the Abdomen

DR. GEORGE G. ROSS: To appreciate fully the value of pain of the abdominal organs, we must be familiar with the nerve-supply to the organs themselves, as well as to the overlying abdominal wall, and the relationship which exists between them and the consequent reflexes which result. The treatment of acute gastric ulcer is distinctly medical. Hemorrhage must be controlled. Anatomic and physiologic rest is to be secured by rest in bed and opium. Hemostatics do little or no good. Epinephrin may control bleeding for a while if brought into contact with the bleeding point. The consequent relaxation of the vessels, however, will encourage fresh bleeding. Fluid can best be supplied to the circulation by proctoclysis or hypodermoclysis. The intravenous transfusion of salt solution should not be employed until the bleeding point has been controlled because the consequent rise of blood-pressure will encourage bleeding. Surgical intervention in acute ulcer is indicated in recurrence of bleeding or perforation of the ulcer. In chronic gastric ulcer radical operation is rapidly becoming recognized as the proper treatment.

In the vast majority of cases of chronic dyspepsia there is an organic lesion which will explain the trouble. Dyspepsia is a symptom and not a disease. The pain of ulcer presents several typical characteristics. It is present in the epigastrium, either to the left or right of the mid-line, depending on the location of the ulcer; to the right in ulcer of the pylorus, either gastric or duodenal; to the left when nearer the body of the stomach. It is burning and aching in character and has a relationship to eating. The operative treatment of peptic ulcer of the stomach and duodenum depends on its location. It is a question whether the pain of biliary colic is due to the actual passing of the stone through the cystic or common duct or to the distention of the gall-bladder and duct due to blocking of the lumen. In cholelithiasis we have two methods of procedure: (1) cholecystostomy, with removal of the stones; (2) cholecystectomy. The latter procedure is attended with high mortality and should, in my opinion, be confined to the cases in which the gall-bladder is functionless from cicatricial contraction, gangrenous or carcinomatous change.

The Causes of Pain in the Upper Right Quadrant of the Abdomen as Determined by Means of the Roentgen Rays

DR. G. E. PFAHLER: Practically all pathologic conditions in the chest which may cause pain in the right upper quadrant of the abdomen can be demonstrated by Roentgen rays. Subdiaphragmatic abscess can usually be demonstrated. Biliary calculi can be shown in some cases. Duodenal, gastric and colonic adhesions can practically always be demonstrated by their effects on the position and movements of these organs. Gastric ulcer can only be shown when it has perforated, and can be suspected by spasmodic contractions which may be present in the stomach. Duodenal ulcer may be suspected if spasmodic constrictions are present in the duodenum. Gastric carcinoma, I believe, can almost always be demonstrated. Renal calculus can be demonstrated in at least 98 per cent. of the cases with good technic. Renal abscess can often be demonstrated by combined cystoscopic and roentgenoscopic examinations. Perinephric abscess can be demonstrated when it is large enough to produce a palpable tumor, or when it will displace neighboring organs. Colonic kinks and constrictions can be demonstrated. Each of the above conditions requires careful technic and careful study in the sequence of the various steps during the examination, and usually requires not only a fluoroscopic examination but a number of plates.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

New York State Journal of Medicine, New York

March, XII, No. 3, pp. 105-156

1 Public and Medical Profession. A. T. Bristow, New York.
2 Hormonal, Peristaltic Hormone (Zuelzer), and Its Uses. H. W. Lincoln, Brooklyn.
3 *Advantages of National Quarantine. L. E. Cofer, Washington, D. C.
4 Roentgen Rays in Gastro-Intestinal Examinations. A. F. Holding, Albany.
5 Gastric Ulcer. W. W. Skinner, Geneva.
6 Neurasthenia. H. G. Webster, Brooklyn.
7 Ocular Hyperemias. H. E. Smith, Norwich.
8 Diagnosis of Syphilis. W. W. Quinton, Buffalo.
9 Combined Vaccines in Treatment of Gynecologic Infections. W. Stone and T. L. Hein, New York.

3. **Advantages of National Quarantine.**—The reasons given by Cofer why it is advantageous for maritime quarantine to be under national supervision are the following: 1. Uniformity of quarantine regulations and quarantine procedure. 2. The Treasury Department by correlating the work of its Customs Division and Revenue Cutter Service Division with the quarantine function is able to furnish the latter with the maximum amount of assistance and dispatch. 3. The national quarantine establishment is in direct touch with all parts of the world, through the courtesy of the state department and its consular bureau, and publishes a weekly bulletin devoted to sanitary reports and statistics. 4. The quarantine officers in the national service are appointed for life, consider themselves residents of no place in particular and are nonpartisan in the performance of their official duties. Their time and their mental activities are devoted to their work and they are not disconcerted by fear of removal from office. Their acquired knowledge of marine architecture, nautical usage and maritime conditions enables them to adjust in perhaps a judicial way, the many differences of opinion and difficulties which arise in the enforcement of quarantine laws on maritime commerce. A quarantine officer, if he has not the knowledge of the manners and customs of seafaring men, of the difficulties under which vessels are run, of the necessity for saving time to vessels, of the necessity of not being arbitrary in the face of adverse winds, weather, lack of coal and water supply and other conditions which must be faced in connection with this work, the usefulness of such an officer in the long run would be extremely doubtful. 5. The public at large, the maritime interests and the quarantine function at a given port must receive in the long run great benefit from having both the quarantine and

immigration examination conducted by the same set of officers in a uniform manner. 6. In the matter of expense, it would appear that if a state would ask the nation to conduct its quarantine service simply to save money, the only benefit to accrue would be to the maritime interests and to the individual state. On the other hand, if a state would elect to transfer the quarantine function to national control, in order that the money previously spent for maritime quarantine purposes could be diverted for the betterment of intrastate sanitary conditions, then this reason alone would seem sufficient for every state turning its maritime quarantine over to the nation as a whole. 7. An important feature in connection with the national control of quarantine is the fact that the subject is being closely studied from many viewpoints, and the Hygienic Laboratory at Washington is being called into constant use for the purpose, not only of giving technical instruction to officers as above mentioned, but in simplifying the regulations and restrictions in accordance with the growth of knowledge as to quarantinable diseases and their methods of transmission.

Interstate Medical Journal, St. Louis

March, XIX, No. 3, pp. 171-304

10 Diagnosis and Non-Surgical Treatment of Duodenal Ulcer. G. Herchell, London.
11 Use of Proctosigmoidoscope in Diagnosis and Treatment. H. Strauss, Berlin.
12 Diagnosis of Cancer of Stomach. J. W. Weinstein, New York.
13 Duodenal Alimentation. W. G. Morgan, Washington, D. C.
14 Human Intestinal Parasites Common in United States. C. C. Bass, New Orleans.
15 Treatment of Gastric Diseases. J. Kaufman, New York.
16 Splanchnoptosis, or Constitutional Neurocardio-Vascular Asthenia with Osseus Dystrophies and Disproportions—Enteroptosis. J. C. Hemmeter, Baltimore.
17 Diagnostic Value of Test for Occult Blood in Stomach Contents and Feces. H. W. Soper, St. Louis.

Military Surgeon, Washington, D. C.

March, XXX, No. 3, pp. 251-367

18 Venereal Problem in Army and Navy. J. R. Kean, U. S. Army.
19 *New Diet for Typhoid. W. M. Garton, U. S. Navy.
20 *Treatment of Typhoid. C. P. Wertenbaker, U. S. P. H. and M. H. S.
21 Mounted Hospital Corps Men. G. F. Campbell, U. S. Army.
22 Report of U. S. Army Board for Study of Tropical Diseases as They Exist in Philippine Islands. W. P. Chamberlain, E. B. Vedder and J. R. Barber, U. S. Army.

19. **Diet in Typhoid.**—A minimum nitrogenous diet has given Garton splendid results in the treatment of typhoid. It consists of principally carbohydrates and fats that meet the requirements of a minimum nitrogen equilibrium. The following table is the complete diet given in twenty-four hours: 6:30 a. m.—One cup hot coffee with two drams sugar. No cream. Two slices of zwieback or buttered toast. 8:30 a. m.—One portion of cereal oats or barley, according to bowel indications, with six buttered crackers, saltines. 10:30 a. m.—Six ounces soup. Change recipe occasionally. 12:30 p. m.—One medium baked potato, mashed and prepared with butter. Add large pinch of salt. Two thin slices of buttered toast, hot, and one cup hot weak tea with two drams of sugar. 2:30 p. m.—Two teaspoonfuls of pudding, bread or tapioca, preferably the latter, and six saltine crackers. 4:30 p. m.—Two ounces of rice, farina or wheat cereal thoroughly mixed with one ounce of butter and four drams of sugar. Change from day to day to alter diet. 6:30 p. m.—Three slices of buttered toast. 8:30 p. m.—Six ounces of soup. At the height of the fever if these foods are distasteful or if the patient cannot eat the full quantity, reduce amount and add milk sugar in considerable quantity. Give the patient three grains of sugar of iron, t. i. d., or four drops of tincture ferrous chlorid in fresh lemonade, t. i. d. Water should be given almost *ad libitum* (internal hydrotherapy). Orange and lemon ices can be given when ordered.

20. **Treatment of Typhoid.**—On commencing the treatment of typhoid Wertenbaker usually gives a dose of castor oil, combined with some of the aromatics, for the purpose of clearing out the bowels. Nothing in the way of food is given excepting orange juice, of which the patient is allowed as much as is desired. Usually a pint or more of the juice is consumed in twenty-four hours. The juice is squeezed from the oranges, strained and given cold. Patients generally like it, and do not tire of it as they did of a milk diet. The patient is encouraged to drink water freely, and is given tea freshly made, when desired. Little or no medicine is given; an occasional dose of turpentine emulsion, or assafetida is given if tympanites is present. Lately Wertenbaker has been giving 10 drops of dilute hydrochloric acid three or four times a day. He usually uses strychnin as a heart stimulant. The lower bowel is washed out by an enema once or twice daily. A sponge bath is given whenever the temperature reaches 103 F., but this is seldom necessary. He has never used the tub bath to reduce the temperature in typhoid, as he has never found it necessary. The patient and his discharges are carefully screened against flies. Under this treatment the disease runs a regular course, the temperature seldom rising above 103 F., and but few complications have developed. When the temperature has remained normal for forty-eight hours, the tongue clean, and the red edge at the tip has disappeared, Wertenbaker allows the patient one soft boiled egg, with a cup of tea or coffee.

Denver Medical Times and Utah Medical Journal, Denver

March, XXXI, No. 9, pp. 349-396

23 Dermatitis Exfoliativa: Report of Case. G. P. Lingenfelter, Denver.
24 Abdominal Pain in Typhoid. C. B. Dyde, Greeley, Colo.
25 Traumatism and Rupture of Urethra and Traumatic Stricture; Report of Case. J. Lindahl, Denver.
26 Chemical Shorthand. H. S. Denison, Denver.
27 Antipyretics; Their Use and Abuse. G. C. Emery, Preston, Ida.
28 The Social Evil. G. F. Lydston, Chicago.

Journal of Nervous and Mental Disease, Lancaster, Pa.

March, XXXIX, No. 3, pp. 145-216

29 *Causes of Death in Tabes. C. W. Burr, Philadelphia.
30 Amyotrophy of Lead-Poisoning with Increased Reflexes. W. B. Cadwallader, Philadelphia.
31 Mental Symptoms of Acute Chorea. A. R. Diefendorf, New Haven, Conn.
32 Clinical Classification of General Paralyses of Insane. S. N. Clark, Kankakee, Ill.

29. **Causes of Death in Tabes.**—Chronic myocarditis, valvular heart disease and chronic nephritis are noted more frequently in the autopsy records of the thirty-four cases analyzed by Burr than any other pathologic processes. Atheroma of the aorta is specifically mentioned nine times. Aneurism of the aorta was present in three cases but was not the cause of death in any. It caused some erosion of the lumbar vertebræ in one case in which the aneurism was abdominal. Pulmonary tuberculosis caused death in six cases and acute croupous pneumonia in five. Three of the patients suffered from cerebral thrombosis causing hemiplegia, but all lived for some time after the stroke and none died from it. Two died from septicemia from bedsores. One had carcinoma of the pylorus, which during life gave no symptoms, and another carcinoma of the cervix. One died from a suppurative prostatitis. In eight the immediate cause of death seemed to be pulmonary edema. Burr regards general arterial fibrosis as part of the morbid anatomy of tabes. The other lesions found are accidental or consequential. Pathologic changes in some of the organs were directly due to the tabes; for example, cystitis is given an opportunity to develop by the difficulty in micturition, and changes in the muscles of the bladder are surely sometimes trophic.

Journal of Oklahoma State Medical Association, Muskogee

March, IV, No. 10, pp. 397-442

33 Diagnosis of Carcinoma of Breast. J. H. White, Muskogee.
34 Bronchopneumonia. P. P. Nesbitt, Muskogee.
35 Diagnosis and Treatment of Diphtheria. A. B. Montgomery, Muskogee.
36 Relative Frequency of Mixed Type of Venereal Ulcer (Chancroid and Chancre). J. H. Sanford, Muskogee.
37 Cerebrospinal Meningitis in Infant. C. W. Heitzman, Muskogee.
38 Present Status of Cancer Problem. F. J. Wilkiemeyer, Muskogee.
39 Treatment of Tuberculous Disease of Hip. R. L. Hull, Oklahoma City.
40 Arteriosclerosis. E. M. Boardman, Parsons, Kan.

Surgery, Gynecology and Obstetrics, Chicago

March, XIV, No. 3, pp. 275-311

41 *Blood-Supply of Uterine Myomata. J. A. Sampson, New York.
42 Non-Suppurative Subphrenic Peritonitis Complicating Appendicitis. H. Neuhof, New York.

43 Technic and Remote Results of Vascular Anastomoses. A. Carrel, New York.
44 Ultimate Results of Conservative Surgery of Ovaries. E. Reynolds, Boston, Mass.
45 Cancer of Prostate. R. C. Bryan, Richmond, Va.
46 Treatment of Ectopic Gestation. E. B. Cragin, New York.
47 Fürstenau's Roentgenstereometry. M. Reichmann, Chicago.
48 Persistent Cloaca: Technic of Cure. C. S. Hosmer, Portland, Ore.
49 Cardiospasm. J. F. Erdmann, New York.

41. **Blood Supply of Uterine Myomata.**—One hundred uteri were removed by Sampson for the following pathologic conditions: Myomata, sixty-two; pelvic inflammatory conditions, including one instance of tuberculosis and another of puerperal infection, twelve; ovarian cysts, including two instances of ovarian carcinoma, eight; uterine bleeding of obscure origin where very small intramural myomata were found, and which may or may not have been the cause of the bleeding, nine; ectopic pregnancy (one tubal and the other interstital), two; carcinoma of the body of the uterus, three; carcinoma of the cervix, two; complete prolapsus of the uterus, two. Nearly 40 per cent. of the material was obtained at operations in which the uterus was removed for other conditions than myomata. In seventy-four uteri, removed under the last-mentioned conditions and injected as a matter of routine, myomata were encountered in thirty-eight; that is, in over one-half. Sampson says that small myomata are more readily seen in the injected than in the non-injected specimens. His studies have led him to believe that these tumors are of even more frequent occurrence than previous reports have indicated, and, also, that the presence of only one tumor in a uterus is unusual. One thousand one hundred and eight tumors were encountered in these one hundred uteri, and in four uteri, only, was a single tumor found.

By means of stereoscopic radiographs, it was determined that arterial blood is carried to these tumors through nutrient arteries, which are either radial or peripheral branches of an arcuate artery. Because of this, myomata may be grouped into *radial* and *peripheral*. In many, only one nutrient artery was found; in others, two or three, with one predominating. Sampson has not determined the origin of the secondary nutrient arteries, but thinks they arise from vessels originally communicating with branches of the nutrient artery. Often the only communication found between the intrinsic arteries of the tumor and those of the myometrium was by the nutrient arteries. In some of the medium size and large tumors an anastomosis was found between the arterioles of the myometrium about the tumor and similar vessels in the periphery of the myoma. When these tumors change their position the nutrient artery accompanies them. In many myomata there is very extensive development of the intrinsic blood-vessels filled with the arterial injection mass, so that the injected specimen appears as an arterial angioma rather than a myoma. Sampson has not yet determined how the arterial blood gains access to the veins.

Buffalo Medical Journal

March, LXVII, No. 8, pp. 421-476

50 Meningitis. F. S. Cregg, Buffalo.
51 Vincent's Angina. V. M. Griswold, Fredonia, N. Y.
52 Three Years with Army of Potomac. W. W. Potter, Buffalo.
53 Athenian Epidemic of Meningitis of 1911. C. M. Mercurius.

Archives of Internal Medicine, Chicago

March, IX, No. 3, pp. 273-399

54 *Bone Metabolism: Etiology of Non-Puerperal Osteomalacia. F. H. McCrudden and H. Fates, New York.
55 *Phthalein Test: Experimental and Clinical Study of Phenolsulphonephthalein in Relation to Kidney Function in Health and Disease. L. G. Rowntree and J. T. Geraghty, Baltimore.
56 Case of Pancreatic Diabetes Mellitus. H. O. Mosenthal, New York.
57 Orthodiascopic Observations Concerning Certain Type of Small Heart and Its Relations to Some General Systemic Affections. I. Adler and O. F. Krehbiel, New York.
58 *Influence of Kidney Extracts on Blood-Pressure. R. M. Pearce, New York.
59 Hemorrhagic Disease: Septicemia, Melena Neonatorum and Hepatic Cirrhosis. G. H. Whipple, Baltimore.

54. **Bone Metabolism.**—The findings in the authors' case of osteomalacia are in accord with the views of others. The loss of calcium and retention of magnesium and sulphur are in accord with the conception of the process in osteomalacia as one in which the bone is undergoing metabolism but in which the new bone laid down is an osteoid tissue poor in lime salts but richer than normally in magnesium. The presence of bony tumors preceding the osteomalacia is in accord with the conception that the starting point in osteomalacia can usually, if not always, be traced to a demand for calcium salts. And the continued excretion of an excess of calcium when the bones really need this element is in accord with the conception regarding the importance of overproduction in bringing about the softening of the bone.

55. **Phthalein Test.**—Briefly, Rowntree and Geraghty found that the absorption of phenolsulphonephthalein following injection into the lumbar muscles is better than the absorption from the gluteal injection, while the latter is superior to subcutaneous injection. Experimentally those diuretics that stimulate the renal cells to increased activity cause some increased secretion of phenolsulphonephthalein, while those that act mechanically produce no increased secretion. Clinically diuretics do not influence the phthalein output. Experimental evidence seems to indicate that phenolsulphonephthalein is excreted mostly by the tubules but probably also to a slight extent by the glomeruli. Phenolsulphonephthalein is better adapted for use as a functional test than any other drug previously employed for the same purpose, on account of its early appearance in the urine and the rapidity and completeness of its elimination by the kidney and the reliance to be placed on its findings. It is of immense value from a diagnostic and prognostic standpoint in nephritis inasmuch as it reveals the degree of functional derangement in nephritis whether of the acute or chronic variety. In the cardiorenal cases so far studied the test has proved of value in determining to what degree renal insufficiency was responsible for the clinical picture presented. The test has proved of value not only in diagnosing uremia from conditions simulating it, but has also successfully indicated that uremia was impending when no clinical evidence of its existence at the time was present. The test has proved of great value in revealing the true renal condition in cases of urinary obstruction. It is here of more value than the urinary output, total solids, urea or total nitrogen, and enables the surgeon to select a time for operation when the kidneys are in their most favorable functional condition. The improvement in the renal condition in cases of urinary obstruction following the institution of preliminary treatment is strikingly indicated by this test. In unilateral and bilateral kidney diseases the absolute amount of work done by each kidney as well as the relative proportion can be determined when the urines are obtained separately.

58. **Influence of Kidney Extracts on Blood-Pressure.**—The method used by Bingel and his associates to demonstrate a pressor substance in kidney extracts fails to reveal such a substance in extracts of the dog's kidney in Pearce's experiments. Extracts of the kidneys of dogs with experimental uranium and chromium nephritis, prepared at a time when the urine is free of the normally present depressor substance, have no pressor effect. These observations would appear to demonstrate conclusively that the dog's kidney does not contain a pressor substance which is masked by the more powerful depressor substance. They also fail to support that phase of the theory of internal secretion which assumes that the kidney furnishes a pressor substance of importance in the pathology of cardiovascular disease.

American Journal of Surgery, New York

March, XXVI, No. 3, pp. 97-128

60 Personal Reminiscences of Lord Lister; Introduction and Development of Antiseptic Surgery in America. H. O. Marcy, Boston.
61 Micrococcus Catarrhalis as Cause of Inflammation in Genito-Urinary Tract. W. Ayers, New York.
62 Misleading Abdominal Symptoms. A. M. Crispin, New York.
63 Surgical Essentials. F. E. Neef, New York.
64 Four Deaths in Latent Sinusitis. G. F. Cott, Buffalo.

American Journal of Orthopedic Surgery, Philadelphia

February, IX, No. 3, pp. 313-526

65 *Adolescent Tibial Tubercle. J. Dunlop, Washington, D. C.
66 Treatment of Tuberculous Joint Disease with Carl Spengler's "I. K." Serum, with Report of Seven Cases. J. L. Porter and L. C. Quinn, Chicago.

67 *Treatment of Hip-Joint Disease. E. H. Bradford, Boston.
68 *Conservative Treatment of Hip-Joint Disease. J. K. Young, Philadelphia.
69 Operative Plan for Correction of Relapsed and Untreated Talipes Equinovarus. M. Hoke, Atlanta, Ga.
70 *Pathologic and Symptomatic Weight-Bearing. Consideration of Prevention and Cure of Foot-Strain. R. B. Osgood, Boston.
71 *Orthopedic Treatment of Fractures of Humerus. F. E. Peckham, Providence, R. I.
72 *Operation for Severe Grades of Contracted or Clawed Toes. F. Hoffmann, St. Louis.
73 *Unusual Pathologic Condition of Sacroiliac Joint Causing Sciatica. S. M. Cone, Baltimore.
74 Pathogenesis of Spur Formation on Os Calcis. R. O. Meisenbach, Buffalo.
75 *Operative Treatment of Knee Derangement. N. Allison, St. Louis.

65. **Adolescent Tibial Tubercle.**—Dunlop's series of cases deals only with the so-called "strains," or a looseness of the tibial tubercle, whereas the lesions of this area, which are evidently of frequent occurrence, include the separations or fractures of the tubercle. He has studied the development of the tibial tubercle from a series of normal radiographs. He believes that the affection is one peculiarly associated with adolescence and that it is most apt to occur at the time in the individual case when the cartilaginous space is least between the tibial tubercle and the diaphysis, at a time just before union takes place. It is liable to occur at any time after ossification of the tongue-like process. It may occur on both sides, but that one side seems to be the usual occurrence, one side evidently developing somewhat earlier than the other, the right side probably developing before the left. The right knee seems to be affected more frequently than the left, as Schlatter concludes. This Dunlop ascribes to the fact that the right leg is stronger than the left and is used more. That is to say, the muscular action is greater. It is also more advanced in ossification and the cartilaginous plate becomes thinner and thereby weaker at an age when the "give" to the cartilage of the left side is still present. Girls may be affected as well as boys, a point in which Dunlop differs from all other observers; and girls are affected at a considerably earlier period than boys, the onset in two of his girls being at the tenth year. Boys seem more liable to the affection between the thirteenth and fifteenth year. The etiologic factor is muscular action of the anterior thigh muscles and it almost always occurs in especially well-developed children. In this class of cases should be included only mechanical irritations and not infections. The condition has been recognized for a great many years, but since the use of the Roentgen-rays diagnosis and prognosis may be much more certain and that treatment may be more rationally carried out, as the full extent of the injury can be positively ascertained. Recovery may be expected promptly when the diagnosis has been established.

67, 68, 70, 73 and 75. Abstracted in THE JOURNAL, June 17, pp. 1845, 1846 and 1847.

71. **Treatment of Fractures of Humerus.**—Peckham maintains that almost any fracture of the surgical neck, the shaft, or the lower end of the humerus, either operative or non-operative, could be reduced and the fragments kept in perfect apposition without the introduction of metal.

72. **Operation for Contracted or Clawed Toes.**—This operation consists of excision of the heads and, if necessary, of parts of the necks of the metatarsal bones of all the affected toes through a single transverse curved plantar incision just behind the web of the toes.

Journal of Missouri State Medical Association, St. Louis

March, VIII, No. 9, pp. 337-370

76 Tonsillectomy, with Presentation of Specimens Removed by Author's Method. G. Sluder, St. Louis.
77 Present-Day Craniocerebral Surgery. N. W. Sharpe, St. Louis.
78 Importance of Bacteriologic Examination of Water and Inspection of Water-Supplies. O. W. H. Mitchell, Columbia, Mo.
79 Surgical Indications in Mechanical Urinary Disturbances. F. W. Bailey, St. Louis.
80 Doederlein Pubiotomy. P. H. Swahlen, St. Louis.
81 Limits of Catheter in Treatment of Chronic Enlargement of Prostatic Gland. C. H. Wallace, St. Joseph, Mo.
82 Empyema. F. E. Bullock, Forest City, Mo.
83 Case of Pulmonary Tuberculosis with Cavity Formation in Infant Aged 3 Months. E. P. Buddy, St. Louis.
84 Lime-Crusted Silk Sutures in Bladder; Radiographic Diagnostic Report. E. H. Skinner, Kansas City.

Virginia Medical Semi-Monthly, Richmond

March 8, XVI, No. 23, pp. 573-600

85 Two Cases of Tuberculous Meningitis in Infants. C. A. Pfender, Washington, D. C.
86 Leg Amputations from Standpoint of Utility. L. A. Thompson, U. S. Army.
87 Fashions in Typhoid; 239 Cases of Typhoid in University of Virginia Hospital. J. S. Davis, University.
88 *Hydrophobia; 400 Patients Treated at Pasteur Institute of Virginia. S. B. Moon, Richmond.
89 Etiology and Pathology of Acute Rheumatism. C. B. Conklin, Washington, D. C.
90 Indications for Herniotomy in Inguinal Hernias. S. B. Moore, Alexandria, Va.
91 Albuminuric Retinitis. L. O. Mauldin, Greenville, S. C.
92 Anatomy of Gall-Bladder and Ducts. J. W. Winston, Norfolk.

88. **Hydrophobia.**—Of the 400 patients treated at the Pasteur Institute of Virginia three have died of hydrophobia. Two of these were among the thirty-nine bitten about the face, head or neck, and they had multiple severe wounds on the face. On this account the disease came on before it was possible to render them immune. The third was bitten on the hand, and died about four months afterward, although another man bitten by the same dog, and also treated, remained well. Thus was recorded one failure to immunize among the 400 treated. The usual mortality in face bites is 8 to 15 per cent. of those treated, and in other cases about one in 300 treated. Two persons, who were advised to take treatment after being bitten, declined it, and afterward presented themselves with typical signs of hydrophobia, dying a few days afterward.

Western Medical Review, Omaha, Neb.

March, XVII, No. 3, pp. 107-158

93 Empyema. F. A. Long, Madison, Neb.
94 Purpura Hemorrhagica During Convalescence from Scarlet Fever. E. C. Stevenson, Gothenburg, Neb.
95 Lymphangioplasty. G. Haslam, Fremont, Neb.
96 Appendicitis in Children; Report of Cases. A. L. Ker, Cambridge, Neb.
97 Acute Inflammation of Nasal Accessory Sinuses. W. D. Shields, Holdrege, Neb.

Boston Medical and Surgical Journal

March 21, CLXVI, No. 12, pp. 349-374

98 Significance of the General Practitioner. A. Jacobi, New York.
99 *Acute Suppurative Pericarditis in Infancy. H. Barkan and W. P. Lucas, Boston.
100 *Blood Platelets in Normal Women, in Obstetric Patients and in New-Born. M. E. Morse, Boston.
101 *Demineralized Food and Cancer. H. Packard, Boston.

99. **Acute Suppurative Pericarditis in Infancy.** That pericarditis may occur, first, without any symptoms attributable to the heart beyond the collapse which is a common enough symptom in all cases of marked infantile atrophy is shown in the authors' case. Second, the occurrence without any physical signs that could be made out, at least not the text-book signs; no bulging of the precordia, no increase in cardiac area, no loss of cardiac impulse or sounds, no dyspnea, no cyanosis beyond that found in all cases of collapse just at the end. And this case, from autopsy findings, must have existed at least four days, during which period the temperature remained approximately normal. Third, the occurrence of suppurative pericarditis without any involvement or infection of the lungs or pleura, no pneumonia, pleurisy or empyema, which, as has been shown, is the case in over 90 per cent. of cases occurring in infants. Fourth, no profuse cardiac involvement, as endocarditis or myocarditis. Fifth, in fact, none of the acute infectious processes found in a review of the literature as having been the cause, even rarely, of suppurative pericarditis in infants. Sixth, the only processes which this could have been secondary to were, first, the eczema, which, as is shown by the history, was gradually improving, or to some subacute intestinal infection which gave no definite symptoms. Neither of these could be ruled out, so that the authors were forced to conclude that this case of suppurative pericarditis was either due to a primary infection of the pericardium or to the almost as rare and, as far as known, unreported cause of pericarditis, subacute intestinal indigestion. The infecting organism, the streptococcus in this case, probably gained its entrance through the skin or the intestinal tract, due to the lowered resistance in these two fields; therefore this case must probably be considered a secondary infection rather than a primary.

100. **Blood Platelets.**—The object of Morse's work has been to determine, first, the usual number of platelets in the normal woman, and whether there are variations corresponding to the menstrual cycle; second, the behavior of the platelets in pregnancy, labor and the puerperium; also in abnormal obstetrical conditions (hemorrhage, eclampsia and operative procedures); and lastly, the numbers of platelets in the new-born and in some of the complications of early infancy (icterus, hemorrhagic disease and skin lesions). The conclusions arrived at may be summarized as follows: In some normal women, but not in all, there is an increase in the platelets accompanying menstruation. During the latter half of pregnancy most primiparæ have a high normal or an increased platelet count, while multiparæ usually show no rise. There are no special changes in the platelets during labor or the early days of the puerperium. At the end of the first week there is an increase which does not seem to be dependent on lactation. In eclampsia and pre-eclamptic toxemia the platelets may be high, low or normal, and they may be greatly increased during recovery. After post-partum hemorrhages of considerable size, the platelets show a moderate rise, with a maximum occurring late in the puerperium. The platelets may be low after prolonged labors terminated by operation. In case of short uncomplicated obstetrical operations done when the patient is in good condition, the platelets follow the same curve as in a normal labor and puerperium. In uncomplicated abdominal and vaginal operations there is in some cases a transitory rise of the platelets following operation. Scopolamin-morphin, used during labor, causes no changes in the platelets. The number of platelets at birth varies greatly, being sometimes high and sometimes low. After the end of the first week, however, these differences disappear and in early infancy the platelets are numerous (350,000 to 450,000). The platelets show a marked increase in icterus neonatorum. In hemorrhagic disease of the new-born there is no diminution of the platelets at the onset, but a post-hemorrhagic rise with a late maximum. In skin lesions of early infancy the platelets may be high or rather low, depending on the condition of the child.

101. **Demineralized Food and Cancer.**—The query "How important a part do the mineral ingredients of foodstuffs play in the maintenance of life, health, strength, endurance and resistance to disease in the human family?" is the basis of Packard's study. He holds that if the theory of demineralization of the staple foodstuffs of the world as a negative factor in the causation of cancer be a tenable one, it fits in with the actual conditions in all the civilized nations of the earth. No other article of food is in such universal and daily use among civilized nations as white flour bread and all the flour mills of the world send out to the public a material for bread-making consisting of but little more than wheat starch, while the salts of phosphorus, calcium, sodium, potassium, iron, magnesium and silica, in which wheat is particularly rich, are cast away. There are still communities of people so isolated from the civilized world that the material for making bread which is white does not reach them, or, if at all, in such small quantity that it constitutes but a trifling proportion of their dietary. The interesting and impressive thing about these people is that they do not have cancer, or if at all, to so slight a degree that it is a negligible quantity.

Some patients with inoperable recurrent cancer whom Packard placed on a diet and treatment in conformity with this theory in the spring of last year show an apparent arrest of the disease and a general condition of good health quite at variance with former experience in similar cases. The dietary for cancer patients in conformity with the food salts theory, Packard says should be something as follows: 1. Exclude all white flour bread, and all articles into which white flour enters, from the diet, and substitute for it bread made from whole wheat flour as above outlined. 2. Potatoes next to bread form the most important and widely used article of diet, and properly conserved in cooking they are rich in the food salts, which are located in the peripheral portion immediately beneath the skin. Therefore, one or two baked potatoes daily are advised prepared as follows: Discard the heart or central starchy portion and eat the peripheral portions rich in mineral ingredients, conserving to the very outer skin. The common way of cooking potatoes, by paring raw, soaking in cold water for an hour or two, then boiling, dissolves out and boils out about 50 per cent. of the food salts. 3. Encourage the eating freely of well-cooked fresh vegetables, apples raw or cooked in any way, and fresh ripe fruits. 4. Meats and fish may be used moderately according to inclination, bearing in mind that these probably make no difference one way or the other in the development or growth of cancer. A certain amount of protein must be included in the dietary, and if not taken as flesh food it must be made up in eggs, cheese, milk and leguminous vegetables. Packard begs for an unprejudiced application of these theories and principles not only in cancer cases, but as far as possible in healthy persons, as a prophylactic against cancer. It is his conviction that by this expedient alone the cancer rate may be reduced from its present appallingly high rate.

Mississippi Medical Monthly, Vicksburg

March, XXI, No. 11, pp. 209-240

102 Case of Malarial Hemoglobinuria. F. M. Brougher, Belen.
103 Eclampsia. E. L. Robertson, Sunflower.
104 Plea for Protection of Innocent. H. C. Buck, Friars Point.
105 Use of Flexner's Antimeningitis Serum; Report of Cases. S. T. Wells, Alligator.

Medical Record, New York

March 23, LXXXI, No. 2159, pp. 551-600

106 Pathogeny of Mental Disease, with Special Reference to Minor Psychoses. A. M. Hamilton, New York.
107 *Prominent Ears. R. T. Morris, New York.
108 *Malformation of Tænia Saginata. G. A. MacCallum, New York.
109 Atypical Incipient Poliomyelitis and Its Diagnostic Difficulties. H. R. Sheffield, New York.
110 Pellagra in Canal Zone. W. E. Deeks, Ancon, Canal Zone.
111 Case of Acroparesthesia. A. Maverick, San Antonio, Tex.
112 Berberine. W. F. Waugh, Chicago.

107. **Prominent Ears.**—The method employed by Morris consists of excising practically all the fibrocartilage of the concha, antihelix and antitragus. As a preliminary step an ellipse of skin is removed from the posterior part of the ear and from the mastoid region of the scalp. The ellipse is of such shape that about one-half relates to the ear and the other half to the mastoid region of the scalp. Then gradually trim the cartilage away from the skin of the anterior aspect of the ear by alternately pressing and snipping. The skin from which cartilage is removed is thin, but well supplied with blood, and does not slough subsequently. The very thin skin over concha and antihelix may be buttonholed at one or more points while cartilage is being removed, but this is desirable. The reason is this: When the ear, shorn of cartilage, is sutured back over the mastoid region, the space from which cartilage was removed has a tendency to fill with blood clot. Blood clot collecting beneath this thin skin may lead to failure of union or to sepsis. If, on the other hand, the skin is buttonholed, purposely or accidentally, blood promptly escapes on the dressings, and there is no damming or pocketing of clot. The external auditory meatus should be plugged with absorbent cotton in advance of operation; otherwise blood may enter the meatus and form a troublesome clot on the drum membrane. After suturing skin margins of ear to skin margins of scalp two thicknesses of iodoform gauze cut to the shape of the wound line are nicely fitted between skin of helix and skin of scalp. Iodoform gauze is packed on the skin of the anterior part of the ear with attention to depressions, and to the fossa of the helix, compressing the skin evenly and nicely, so that blood cannot collect beneath it.

108. **Malformation of Tænia Saginata.**—In this particular malformation the individual worm suggested the partial fusion of two worms. The body presented itself in the form of three leaves or folds, a cross-section of which showed the bifurcated appearance. Each proglottis showed plainly the genital aperture at the center of the edge of the undivided portion, and from it the reproductive organs were easily traced and located chiefly in the thicker portion of the segment, although some folds of the uterus and some of the testes occupied the middle of the whole length of the bifurcating leaves or folds. Again, the water vascular canal was quite large in the thicker fold

but exceedingly small in each of the others. Although the worm may represent the fusion of two individuals, there was no trace of two sets of organs.

Colorado Medicine, Denver

March, IX, No. 2, pp. 65-100

113 Hormonic Equilibrium of Glands of Internal Secretion. H. S. Denison, Denver.
114 *Principles Underlying Technic of Hollow Visceral Anastomosis, with Recent Methods. C. E. Tennant, Denver.
115 Report of Royal Commission on Tuberculosis. A. S. Taussig, Denver.
116 Immunity in Tuberculosis by Inoculation of Living Tubercle Bacilli. G. B. Webb and G. B. Gilbert, Colorado Springs.
117 Pasteurization. J. W. Amesse, New York.
118 Association Test. G. E. Neuhaus, Denver.
119 Sciatica. L. W. Ely, New York.

114. Also published in *Annals of Surgery*, October, 1911.

Illinois Medical Journal, Springfield

March, XXI, No. 3, pp. 261-398

120 *Chronic Focal Infections and Their Etiologic Relations to Arthritis and Nephritis. F. Billings, Chicago.
121 *Chronic Oral Infections. T. L. Gilmer, Chicago.
122 Tuberculosis of Urinary Organs. A. D. Bevan, Chicago.
123 Tuberculosis of Alimentary Canal and Peritoneum. J. B. Murphy, Chicago.
124 Tuberculosis of Female Genitalia. H. F. Lewis, Chicago.
125 Joint Tuberculosis. J. Ridlon, Chicago.
126 Mortality of Appendicitis. I. H. Eddy, Chicago.
127 Medical Education. A. M. Corwin, Chicago.
128 Medical Legislation Concerning Medical Education in Illinois. G. W. Webster, Chicago.
129 Value of Laboratory Analysis in Diagnosis of Disease. F. Bondurant, Cairo.

120 and 121. Abstracted in THE JOURNAL, Dec. 30, p. 2169.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Glasgow Medical Journal

March, LXXVII, No. 3, pp. 161-239

1 Splenic Metastasis in Case of Carcinoma of Tongue, Due Probably to Vascular Dissemination. Sir G. T. Beatson.
2 Use of Tuberculin in Phthisis. J. Guy.
3 Plague as Factor in History. J. P. Granger.
4 Auriculo-Ventricular Node and Bundle in Case of Adams-Stokes Syndrome. A. M. Kennedy.

Lancet, London

March 9, I, No. 4619, pp. 629-704

5 *Glycosuria. A. E. Garrod.
6 *Malignant Disease of Testicle and Operation for Removal of Iliac-Lumbar Lymph-Nodes When Secondarily Affected. Sir H. Morris.
7 Causation and Prevention of Certain Toxic Symptoms Following Administration of Salvarsan. J. McIntosh, P. Fildes and H. Dearden.
8 Operative Treatment of Exophthalmic Goiter. W. Trotter.
9 *"Aching Throat." W. H. Kelson
10 *Experiments on Treatment of Inoculated Rat Sarcoma and Certain Accompanying Blood Changes. H. G. Grünbaum and A. S. Grünbaum.
11 Treatment of Talipes Equinovarus. E. M. Corner.
12 Value of Pneumococcus Vaccine in Treatment of Pneumonia. N. Raw.
13 Problem of After-Care of Sanatorium Patients. T. D. Lister.
14 Crawford Williamson Long, Pioneer of Anesthesia. D. W. Boston.

5. **Glycosuria.**—Attention is directed by Garrod to many different morbid conditions which bring about disturbances of the metabolism of carbohydrates and to the fact that such disturbances manifest themselves in several different ways: by a lowering of glucose tolerance without actual excretion of sugar in the urine; by a spontaneous excretion of sugar in smaller or larger amount during limited periods of days, weeks or months; and by a persistent glycosuria, accompanied in its higher grades by the associated symptoms which go to make up the clinical picture of diabetes. Moreover, disturbances of these several grades may be induced in different cases by one and the same cause, or in the same case at different times. The effect of this, says Garrod, is to obliterate in one's mind the conception of diabetes as a sharply defined disease, and to present the malady as merely the maximal phase of a series, rising by gradual steps from the normal of metabolism, just as myxedema is the culminating point of the almost insensible grades of hypothyroidism. Between the sufferer from grave diabetes and the potential glycosuric there is a striking contrast, but the gulf which separates them is bridged over by intermediate cases of all degrees of severity. If so, it follows that, with the possible exception of the so-called renal glycosuria, there is no such thing as non-diabetic glycosuria, although there are many varieties which lack the sinister import which we connect with the name of diabetes. The differences are, Garrod believes, rather of degree than of kind. Diabetes is not of necessity a fatal malady. The efficacy of restriction of diet, which has ameliorated the lot and prolonged the lives of hosts of sufferers from diabetes, although it is essentially a symptomatic therapy, is due to the fact that it is the metabolic derangement which proves fatal to most such patients.

6. **Malignant Disease of Testicle.**—Two cases are related by McIntosh to show that columnar carcinoma of the testicle may remain quiescent, or the patient may be absolutely free of recurrence for many years; but the expectation is always that the disease will ultimately recur, though it may be only after a long time. When, therefore, this fact is taken into account, together with two others, namely, (1) that it is impossible to detect the early secondary infection of the ilio-lumbar lymph-nodes; and (2) that the extirpation of these glands, when obviously of magnitude and severity, and has been very discouraging hitherto in its results, when, McIntosh says, these facts are taken into consideration, we may well be led to hope that the practice of the "radical" or "improved" method of excision of the testis may prove to be successful. So far, however, in the seventeen cases reported of this improved operation, there is little, if any, foundation for such hope. In some of the operations the affected glands could not be removed, or, in other words, the improved method was found to be impracticable; in other cases in which the glands were successfully removed at the time, the disease soon returned; while in the rest insufficient time has elapsed since the operation to permit of any conclusion being drawn as to the ultimate result. Still, hope need not necessarily perish because as yet little, if any, encouragement can be derived from the very limited existing experience. Meanwhile the low malignancy of carcinoma testis, and the long histories of such cases will often afford a prospect to any given patient of prolonged or entire immunity after the testis and cord have been excised by the old method.

9. **Aching Throat.**—Experience has shown Kelson that aching throat is more commonly associated with flatulent dyspepsia than anything else, and this seems to act either by the formation of toxins, or possibly the aching may be referred pain, such as that which occurs in the ear so commonly in disease of the larynx and upper part of the esophagus. There may also, however, be local conditions which, if they do not actually cause, certainly accentuate, aching throat; these must be sought out and dealt with in obstinate cases, not forgetting that the condition of the nose and accessory sinuses has a very distinct bearing on the state of the pharynx, as also have the teeth. In order to relieve the dyspepsia, first of all the teeth must be examined, and the patient referred to a good dentist if necessary. The diet must be inquired into and corrected. As regards the vexed question of alcohol, it certainly seems in some cases to bring on and in others to aggravate the aching, and on the whole these patients are better without it. Kelson knows of several cases in which washing out the stomach has completely relieved the aching, and considers it a most valuable form of treatment if not carried to excess. Among the drugs which have proved most useful, gentian, calumba, strychnin, bicarbonate of soda, bismuth, magnesia and charcoal are the principal ones. Constipation is very common and very troublesome, and if not relieved by careful dieting Kelson has found the best drugs to use to be cascara, podophyllum and sulphur; also small doses of mercury followed by a saline aperient are valuable. As a means of giving temporary relief massage is useful, and so is the galvanic current, but as permanent curative agents both are disappointing. Smoking, if in excess, must be forbidden, but Kelson has not been able to convince himself that moderate smoking was in itself a cause of aching throat, and certainly many women suffer from

it who do not smoke at all, and one finds a good many patients who are anxious to get well and willingly abstain entirely from both tobacco and alcohol, and yet the pain continues.

10. **Treatment of Inoculated Rat Sarcoma.**—In a previous communication the authors showed that by the injection of antivenom (horse) serum it was possible to effect regression of inoculated tumors in rats provided they did not exceed 1.5 cm. in diameter. They have found since that by the simultaneous administration of adrenalin with the antivenom serum yet larger growths can be made to disappear in these animals. In this second series of seventy-seven tumors there have been many which reached or exceeded 2 x 1 cm. in size. The average weight of the animals used has been 40 grams, and of the tumors 8 grams; that is, a tumor equal to one-fifth of the body-weight may be cured. Of these seventy-seven tumors, thirty-four of the largest at the time of starting the experiment have been treated, while forty-three were kept as controls. Of the thirty-four treated, twenty-four were cured, three became larger, while in seven the animals died before the conclusion of the experiment. Of the forty-three control tumors, only eight regressed, the remaining thirty-five increased in size, while twelve animals died before the conclusion of the experiment. In other words, while 70 per cent. of the treated tumors regressed, only 18.6 per cent. of the untreated tumors did so. Moreover, in the untreated animals metastatic deposits were common, but in none of the animals which died while still under treatment were any metastatic deposits found.

Journal of Tropical Medicine and Hygiene, London

March 1, XV, No. 5, pp. 65-80

15 *Experimental Treatments for Leprosy. T. L. Sandes.
16 Leprosy in Sokoto Province. J. M. Dalziel.
17 Transmission of Leprosy. E. C. Long.

15. **Treatments for Leprosy.**—The chaulmoogra oil treatment, undoubtedly slow, and not very satisfactory, has in Sandes' experience shown itself to be superior to any other known remedy or reputed cure for leprosy. He emphasizes that the use of the oil must be prolonged, five years or more; it must be as far as possible continuous, and the imbibition of the oil should be pushed gradually to the extreme of receptivity. Relapses will undoubtedly occur, particularly in the earlier stages, but such should not be permitted to foster discouragement. To expect sudden amelioration is to look for disappointment. Surgical assistance should always be ready to intervene where natural processes or medical applications have failed in discarding devitalized tissues or opposing inflammation.

Dublin Journal of Medical Science

March, I, No. 783, pp. 161-239

18 Four Successful Cases of Cesarean Section. C. Y. Pearson.
19 Proposed Sterilization of Mentally Unfit. M. J. Nolan.
20 Causation of Insanity in Ireland. R. R. Leeper.
21 *Fractures and Dislocations at Elbow-Joint. J. M'Ardle.

21. **Fractures and Dislocations at Elbow-Joint.**—The points on which M'Ardle lays stress are: In fractures of the head of the radius plastic operations are useless and often harmful. The repair of fractures of the upper end of the ulna by operation is not only feasible, but imperative. In fracture of the olecranon by indirect violence extra articular operation yields the most perfect results. In old-standing dislocations of both arm bones backward, reduction without a cutting operation is very rarely successful, and is often attended by very serious injury to the bones, especially in young subjects. Section of the olecranon allows easy reduction, and the fixation of the detached piece by a screw gives an ideal result. Operation from the posterior aspect of the joint is anatomically sound, as all the important structures, except the ulnar nerve, lie in front separated from the area of work by the brachialis anticus. No lateral incisions can give the power to deal with a shortened triceps, which will prevent reduction no matter how freely the lateral ligaments are divided. Fixation by a screw instead of by wiring saves much delay and avoids undue exposure of the periarticular tissues, allowing more rapid repair and obviating subsequent adhesions.

British Medical Journal, London

March 9, I, No. 2674, pp. 529-588

22 Practice of Medicine as Fine Art. E. S. Reynolds.
23 Common Form of Heart Disease (Auricular Fibrillation). J. G. Emanuel.
24 *Management of Cardiac Failure in Diphtheria. E. F. Coghlan.
25 Epinephrin in Cardiac Dyspnea and Cardiac Dropsy. J. C. Voigt.
26 *Case of Anginal Spasm of Exceptional Duration. E. H. Coleman.
27 Reliability of Results Obtained by Wassermann Test on Serums and Cerebrospinal Fluids Obtained Post Mortem. J. P. Candler and S. A. Mann.
28 Accurate Method of Estimating Vibratory Sense. J. L. M. Symns.
29 *Curative Value of Leishmania Culture Vaccine in Oriental Sore. R. Row.
30 Method of Enucleation of Tonsils. C. W. M. Hope.
31 Blind and Census of 1911. W. C. Rockliffe.
32 Casualties in Tibet. R. F. D. MacGregor.

24. **Cardiac Failure in Diphtheria.**—According to Coghlan treatment of patients suffering from cardiac failure accompanied by persistent vomiting should be conducted on the following lines: Position of the patient in bed—The head should be low to prevent cerebral anemia, while the foot of the bed should be elevated. This may help retention of the rectal foods. Clothing—Patients during the stage of cardiac depression become restless and throw off the bedclothes. They should therefore be warmly clad, and for the same reason hot-water bottles should be placed in the bed. Nourishment—All food by the mouth should be stopped and nutrient enemata administered. The rectum should be irrigated twice daily with warm boracic solution, otherwise irritation may be set up, and retention of nutrients become impossible. Cardiac Depression—This must be combated by the administration of medicines. Various drugs have been used for this purpose, chief among them being strychnin, belladonna and adrenalin. The formula used by Coghlan is as follows:

		Gm. or c.c.	
R	Atropinæ sulphatis	1/006	1/100 gr.
	Strychninæ hydrochloridi	1/006	1/100 gr.
		or	
	Sol. epinephrinæ (adrenalin) chloridi (1 in 1,000)	.33	5 m
	Aq.	1/66	ad 10 m

To be administered hypodermically every four hours.

26. **Anginal Spasm of Exceptional Duration.**—The last attack in this case lasted from 9:20 p. m. to 6:25 a. m. Several of the earlier ones were fairly severe but in each case the spasm soon yielded (less than half an hour).

29. **Leishmania Culture Vaccine.**—With the object of hastening the process of healing, Row made a curative "vaccine," much on the same principle as Wright's staphylococcic vaccine in furunculosis. For this purpose massive cultures were obtained in Nicolle-Novy-McNeal medium from the *Leishmania tropica* from an experimental lesion in a *Macacus sinicus*, the original source of the virus being that from a Cambay case obtained early in 1910. When the cultures were at their best, namely, on the seventh day, the fluid, rich in flagellates, was collected and suitably sterilized with glycerin. This is the "vaccine" which has been tried by subcutaneous injection in three typical cases of Cambay sores of different ages with a tentative dose corresponding to 0.125 c. cm. of the original culture. As this dose produced no constitutional or local reaction, a second injection of a double dose was given in two of the three cases. The lesions, both ulcerating and non-ulcerating, healed in about fifteen days.

Journal de Médecine de Bordeaux

February 18, XXIV, No. 7, pp. 96-112

33 Seashore Sanatoriums for Surgical Tuberculosis. (De quelques objections ou critiques formulés contre les hôpitaux marins à propos de leur importance dans la cure de la tuberculose chirurgicale.) F. Lalesque.

Lyon Médical, Lyons

February 18, CXVIII, No. 7, pp. 352-400

34 Cancer of Throat Removed Without Recurrence. (Cancer étendu du pharynx et de la partie supérieure du larynx. Laryngectomie totale. Pharyngectomie partielle avec ablation du tiers postérieur de la langue. Guérison sans recidive après 2½ ans.) M. Villard.

February 25, No. 8, pp. 401-464

35 Indications for and Personal Experiences with Salvarsan. (L'arsénobenzol. Essai de mise au point.) Carle.

Revue de Médecine, Paris

February, XXXII, No. 2, pp. 81-160

36 *Renal Diabetes. (L'élément rénal de la glycosurie et sa complexité.) R. Lépine.
37 *The Dynamic Element in Motor Aphasia. S. Bernheim.
38 Atypical Herpes Zoster. (Les zonas atypiques.) J. Minet and J. Leclercq.
39 The Different Forms of Arhythmia. (Sur les différentes formes d'arythmie au point de vue actuel.) W. Janowski.

36. **Renal Diabetes.**—Lépine's experimental research and clinical experience sustain the assumption that the elimination of sugar is in reality a secretion. Glycosuria may occur without an excess of sugar in the blood; the proportion of sugar in the blood may even be below normal, confirming the assumption of the possibility of an actual renal diabetes in man.

37. **Motor Aphasia.**—Bernheim gives here the necropsy findings in one of the three cases of aphasia he has previously reported. Notwithstanding the total destruction of the region supposed to contain the centers for speech, the patient regained the faculty of spontaneous speech, lost for a time. The patient was a woman of 54 with right hemiplegia and contracture, and the mental faculties became more and more clouded to complete dementia, but the speech gradually approached normal in inverse ratio.

Presse Médicale, Paris

February 24, XX, No. 16, pp. 161-172

40 *Paralysis of the Suprascapular Nerve. (Paralysie du nerf sus-scapulaire.) M. Guibé.
41 *Deranged Metabolism Should Be Studied from Physiologic Standpoint. (Les grandes troubles de la nutrition.) M. Labbé.
42 *Improved Paraffin Prothesis. (Prothèse paraffinique et radiographie.) M. Lagarde.

February 28, No. 17, pp. 173-180

43 *The Antigen Complement-Fixation Test for Tuberculosis of Urinary Apparatus. (Valeur de la réaction de l'antigène de MM. Debré et Paraf pour la diagnostic rapide de la tuberculose urinaire.) M. Chevassu.
44 Digitalis and the Blood-Pressure. (Digitale et tensions artérielles.) A. Martinet.

40. **Paralysis of Suprascapular Nerve.**—Guibé describes the symptoms of this affection and states that complete recovery is rare. He has had only three improved and none cured in eleven neuritic cases while in his fifteen traumatic cases, two patients have entirely and one nearly recovered and four are very much improved. There is no case on record yet, he says, in which an operation was done to cure suprascapular paralysis, but a grafting muscle operation seems theoretically promising.

41. **Deranged Metabolism.**—In the older text-books diseases are listed according to organs, but Labbé insists that progress in treating deranged metabolism is realized only when the physician forgets his anatomy and thinks as a physiologist. It is in the field of pathologic physiology that the solutions for the problems of diabetes, gout, obesity, etc., are to be found.

42. **Improved Paraffin Prothesis.**—Lagarde says that the addition of a little bismuth to the paraffin does no harm in any way, while it permits examination with the Roentgen rays of the injected deposit at the time or years later. He gives illustrations of three patients to show the advantages of this roentgenoscopic control.

43. **Antigen Test for Rapid Diagnosis of Tuberculosis of Urinary Apparatus.**—Chevassu waxes enthusiastic over the rapidity and reliability of the application of the complement-fixation test to this purpose, supplying not the antibody, but the antigen, according to the technic published by Debré and Paraf last July. As the antibody is composed of the specific sensitizing element and the non-specific complement or alexin, it is possible to remove the latter and supply the complement or alexin from another source. Heating destroys the complement so that the antibody then contains merely the specific sensitizer. If then to the suspected urine is added some known tuberculous serum which has been heated to destroy its complement or alexin, and then some complement or alexin from another source is added to the mixture, one of two phenomena will follow: either the suspected urine contains antigen; in this case the antigen, the sensitizing element and the complement combine, and the complement is deviated or fixed; or else the suspected fluid does not contain antigen; in this case there is no combination: there is no fixation or deviation of complement, and the complement is left free. The fixation or non-fixation of the complement is determined by the usual technic for the hemolytic test, the fluid not affecting the blood vessels (sheep) in the presence of antigen, while when there is no antigen present the complement remains free and proceeds to dissolve the blood-corpuscles without delay. This antigen test has been systematically applied at the Necker hospital at Paris during the last eight months, and the findings in eighty applications of the test are reported here. In forty-four cases the findings were controlled by necropsy, an operation or inoculation of animals, and in thirty-seven instances all harmonized; in four cases it was impossible to control the findings, and in three they seemed to be inaccurate, but certainty in this respect was not available. Even accepting these as failures, the test proved entirely reliable in 90 per cent. of all the cases in which it was applied. Most of the causes inducing error in the findings act in the positive sense; that is, in fixing the complement, so that negative findings thus acquire unusual weight. This antigen reaction may throw light on the condition of the other kidney when one is known to be tuberculous; negative findings in the urine of the second kidney will thus permit nephrectomy with a quiet mind.

Archiv für Gynaekologie, Berlin

XCVI, No. 1, pp. 1-236. Last indexed March 2, p. 668

45 *Nervous Reflex Influencing of Uterus from Other Organs. (Klinische und experimentelle Beobachtungen über nervöse Reflexe von verschiedenen Organen auf den Uterus.) L. Engelhorn.
46 Etiology of Rupture of the Uterus. (Fall von spontaner Uterusruptur, zugleich ein Beitrag zur Aetiologie der Uterusruptur.) A. Rauerysen.
47 *Connection Between Reproductive Processes and Local Tumors. (Beziehungen der Fortpflanzungsvorgänge zu den Geschwülsten der weiblichen Geschlechtsorgane.) A. Theilhaber and H. Edelberg.
48 *Fibrin Ferment and Fibrinogen as Factors in Pregnancy Kidney and Eclampsia. (Experimentelle Studien über die ätiologische Bedeutung des Fibrinferments und Fibrinogens für die Schwangerschafts-niere und die Eklampsie.) A. Dienst.
49 Vasoconstricting Substances in Serum During Pregnancy. (Nachweis und Gehalt von gefässverengernden Substanzen im Serum von Schwangeren, Kreissenden, Wöchnerinnen und vom Nabelschnurblute.) O. Schneider.
50 Influence of Ovaries on Respiratory Metabolism. (Weitere Untersuchungen über den Einfluss der Ovarien auf den respiratorischen Stoffwechsel.) L. Zuntz.
51 Influence of Placenta, Fetus and Ovary on Lactation. (Placenta, Fötus und Ovarium in ihrer Beziehung zur experimentellen Milchaustösung.) K. Basch.
52 Origin of Amniotic Fluid. (Herkunft des Fruchtwassers.) R. Wolff.

45. **Reflex Influence on Uterus from Other Organs.**—Engelhorn reports research on 775 women which failed to sustain the assumption that the filling or emptying of the stomach or bladder or digestive processes had anything to do with the contractions of the uterus. In parturients, however, the infant's sucking at the nipple started a contraction of the uterus. This was observed also in pregnant women from mere rubbing or tickling of the nipples.

47. **Relations Between Child-Bearing and Uterine Cancer.**—The records of 307 cases of uterine cancer show that cancer of the cervix occurred in only 2.9 per cent. of the nulliparæ, in 8 per cent. of the women with one child, and in 13 per cent. of those with several children. This suggests that the traumatic injury of the cervix during childbirth creates a predisposition. The particulars of the cancer cases are tabulated and compared from several standpoints. They teach among other things the necessity for prompt repair of the cervix after laceration, striving to keep scar production down to the minimum. The crushing of the middle part of the cervix seems to be peculiarly dangerous as the blood-supply here is poor. When repair is required, it seems wiser to remove the entire intravaginal parenchyma of the cervix, suturing the vaginal mucosa to the cervical mucosa high up, similar to Schroder's technic for ectropium. A comparatively harmless linear scar will then be substituted for the more or less devitalized crushed tissue, and the scar will be in a better irrigated region in the upper half of the cervix.

48. **Fibrin Ferment in Origin of Eclampsia.**—Dienst believes that as more leukocytes are used up during a pregnancy, the thrombokinase resulting therefrom floods the blood in such amounts that the syndrome of eclampsia results. He devotes 128 pages to description of experimental research and clinical experience which seem to sustain this view. It throws light also on pregnancy kidney as well as on the changes in the liver, etc., characteristic of eclampsia.

Archiv für klinische Chirurgie, Berlin

XCVII, No. 2, pp. 249-514. Last indexed March 2, p. 668

53 To Incise the Common Bile Duct or Not After Cholecystectomy? (Wann soll man nach einer Palpationsbefund von Steinen im Choledochus diesen Gang incidiren und drainiren und wann nicht?) H. Kehr.
54 Internal Derangement of Knee-Joint. (Verletzungen der Zwischenknorpelscheiben des Kniegelenks und ihre Behandlung.) F. Brüning.
55 Fifty-Six Cases of Osteomyelitis of Joints. (Gelenkosteomyelitis, speciell osteomyelitische Coxitis.) P. Klemm.
56 Fascia Graft for Defect in Dura. (Ersatz von Duradefecten durch frei transplantierte Fascie.) W. Denk.
57 *Development of Hypertrophy of the Prostate, and Suprapubic Prostatectomy. (Was geschieht bei der suprapubischen Prostatektomie. Woraus entwickelt sich die sogen. Prostatahypertrophie.) A. Lendorf.
58 Teratoma in Bladder of Woman of 35. (Teratoider Tumor der weiblichen Harnblase.) P. Teleky.
59 Third Case of Successful Operative Treatment of Extensive Defects in the Urethra. (Zur operativen Behandlung grosser Harnröhrendefecte.) G. Ekehorn.
60 Access to the Kidneys. (Zur Operationstechnik bei Operationen an der Nieren.) G. Ekehorn.

57. Abstracted in THE JOURNAL, Feb. 17, 1912, p. 526.

Archiv für Verdauungs-Krankheiten, Berlin

February, XVIII, No. 1, pp. 1-120

61 Roentgenoscopy of the Stomach. (Zur Frage des radiologischen Magens.) B. Stiller. (Tierexperimentelle Untersuchungen über den Einfluss der Röntgenmahlzeit auf die Magenform.) F. M. Groedel and L. Seyberth.
62 *Differential Diagnosis of Gastric Cancer and Chronic Gastritis. (Differentialdiagnose zwischen Cancer ventriculi und der chronischen Gastritis mit Achylie.) S. Kemp.
63 Pathology of Duodenal Ulcer. O. Rosenbach.
64 Carlsbad Waters Have Dissolving Action on Urates. (Haben die Karlsbader Wasser urikolytische Wirkung?) A. Poltatschek and M. Adler.
65 *Mistakes in Diagnosing Appendicitis. (Die Blinddarmentzündung.) G. Leven.
66 *Functional Gastric Disturbances. (Funktionsstörung des Magens.) E. Gaither and F. Best.
67 *Parenchymatous Gastro-Intestinal Hemorrhage. (Parenchymatöse Magen- und Darmblutungen.) E. v. Czyhlarz.

62. **Differential Diagnosis Between Gastric Cancer and Chronic Gastritis With Achylia.**—Kemp reports that among twenty-six patients with gastric cancer only two presented normal conditions in regard to the emptying of the stomach. With chronic gastritis and associated achylia the evacuation of the stomach was normal in forty-six of eighty patients in this class. The motor disturbances were much more pronounced in the cancer than in the gastritis cases and they persisted unmodified by treatment, while the motor functioning of the stomach was generally easily restored to normal in the gastritis cases. His experience confirms the value of the "little retention," that is, the finding of a small amount of relics of food in the fasting stomach twelve hours after eating, as a sign of cancer; fifteen of his patients with simple gastritis had this sign but it was constant in the cancer cases and in a more pronounced form; in some of the cancer cases the relics of the preceding meal amounted to a total of from 1 to 6 c.c. Occult blood was found in the stools in 88 per cent. of forty-one cancer patients examined, not modified by treatment. Although occult bleeding may occur with gastritis, yet its continuous occurrence is so rare as to be practically negligible. Cancer of the fundus escapes discovery in its early stages, but cancer nearer the pylorus causes early such disturbances in the motor function that its presence may be suspected from this when the motor functioning is systematically tested on the first symptoms of gastric trouble.

65. **Errors in Diagnosis of Appendicitis.**—Leven gives ten case-histories in which the diagnosis of appendicitis proved to be erroneous. One patient was a boy of 10 whose attacks occurred on Mondays; Leven learned that on that day he took a lesson from a much-dreaded teacher, while his attention had been attracted to the ileocecal fossa by some of his mates having had appendicitis. Leven told him that at the age of 10 the painful point was on the left side, at a point he marked with an indelible pencil. The next attack of pain was localized under the pencil mark. In two other cases the pseudo-appendicitis was traced to arrest of the menses from a powerful purgative or cold, the abrupt cessation of menstruation being accompanied by nervous hyperthermia from the irritated condition of the nerves in the uterus—Leven calls this condition "peritonism." In the other five cases a stomach trouble induced symptoms suggesting appendicitis. Leven warns that before diagnosing appendicitis, the sensitiveness of the skin should be tested, taking up a fold at a time; it will frequently be found that the pain is as intense with this as at McBurney's point. In the menstrual cases the symptoms and pains can be usually abolished by keeping the patient in bed during the period and for two days after, having her take daily an enema containing ten to twelve drops of laudanum and 1.5 gm. sodium bromid in 60 gm. water. Moist heat should be applied to the lumbar region for an hour morning and evening. This will generally prevent or cure the tendency to dysmenorrhea, and thus the independence of the symptoms from the appendix will be plainly manifest. When the true seat of trouble is in the elongated and enlarged stomach, this can be determined by locating the lower margin of the stomach as the patient stands. Then with the hand worked underneath, the stomach is lifted up; as this is done the symptoms in the appendix region subside. They are evidently the results of the pulling and stretching of the nerve plexus in the region.

66. **Functional Gastric Disturbances.**—Gaither and Best report some experiments on dogs which demonstrated among other things that when a stomach has been very much distended, even when the distention has only occurred once, it is liable to lose its elasticity to a certain degree and become unable to pass fluids along while solid food is readily evacuated. When fluid and solid food were given together, the fluid was normally evacuated while the solid food was retained. It was found, however, that dilute hydrochloric acid given with the fluid promoted the emptying of the fluid, and that physiologic salt solution was evacuated more promptly than water alone.

67. **Parenchymatous Hemorrhage from Stomach or Bowels.**—Czyhlarz reports the cases of a young man and woman, previously healthy, who suddenly developed parenchymatous hemorrhage which proved fatal in three days; nothing was found at necropsy to explain the hemorrhage. He has been able to find three similar cases on record. In two other cases a drinking man with arteriosclerosis and chronic gastric catarrh had similar parenchymatous hemorrhages from the stomach, rapidly fatal; no special source for the bleeding could be detected. In two other cases about two weeks after an apoplectic stroke there was extensive hemorrhage in the gastro-intestinal tract, although nothing to explain it was found at necropsy. In two other cases, one previously published by Schultze, profuse gastric hemorrhage had occurred from time to time, finally proving fatal; the gastro-intestinal tract was found apparently normal but a cancer was discovered in the uterus or sigmoid flexure. In conclusion Czyhlarz reports the case of a previously healthy housemaid, who had a febrile sickness of several days' duration in the course of which severe parenchymatous intestinal hemorrhage developed and proved fatal. The most careful search at necropsy failed to reveal any explanation for the febrile affection or for the hemorrhages. He says that he has not been able to find any case like this on record.

Beiträge zur klinischen Chirurgie, Tübingen

February, LXXVII, No. 2, pp. 335-600

68 Stab Wounds of Larynx. (Perforierenden Verletzungen des Kehlkopfes.) N. Boljarski.
69 *Postoperative Parotitis. J. Oehler.
70 *Necrosis of the Pancreas with Recovery. J. Oehler.
71 Echinococcus Disease of the Pancreas. (Ueber Echinokokken des Pankreas.) R. Hanser.
72 Action of Thermopenetration on Normal and Cancerous Tissues. (Histologische Untersuchungen über die Wirkung der Thermopenetration auf normale Gewebe und Carcinom.) E. Stephan.

73 Tincture of Iodin for Operations on Stomach and Intestines. (Verwendung der Jodtinktur bei Magen- und Darmoperationen.) E. Fritzsche.
74 Traumatic Separation of Lower Epiphysis of the Tibia. (Typische Form der traumatischen Lösung der unteren Tibiaepiphyse.) S. G. Leuenberg.
75 *Callous Gastric Ulcer. (Zur Behandlung des callösen Magengeschwüres.) K. Borszéky and A. Baron.
76 Hernia of the Foramen of Winslow. (Pathogenese der Hernien der Bursa omentalis mit normaler Bruchpforte.) K. Borszéky.
77 *Pathology of Cholelithiasis. A. Baron.
78 Thoracal Esophagostomy. J. H. Zaaijer.
79 Tardy Hemorrhage with Traumatic Laceration of the Spleen. (Spätblutungen bei traumatischer Zerreissung der normalen Milz.) A. Nast-Kolb.
80 *Hematoma After Injury of the Skull. (Zur Kenntnis der intracranialen, speziell der subduralen Hämatome bei Schädelverletzungen.) F. Strauss.
81 Fat for Filling Bone Cavities. (Experimentelle und klinische Beiträge zur freien Fetttransplantation. Plombierung von Knochenhöhlen mit Fett.) M. Makkas.
82 Differential Atmospheric Pressure Technics. (Weitere Beiträge zur Uebereinstimmung zwischen Ueber- und Unterdruckverfahren.) L. Dreyer and K. Spannaus.
83 Cholangiocystenteroanastomosis. F. Scheidler.
84 *Oxygen Roentgenoscopy of Large Intestine. (Sauerstoffradiogramme des Dickdarms.) R. Krauss.
85 Fibromas and Fibrosarcomas of the Ovaries. Keil.
86 Torticollis. (Behandlung des muskulären Schiefhalses.) W. Willemer.

69. **Postoperative Parotitis.**—Oehler states that five cases of parotitis following a laparotomy have been encountered at the Freiburg surgical clinic in the last eighteen months, while only one case is known in the previous history of the clinic. Little if any fever accompanied the parotitis and in only one of the cases was sepsis responsible for it. All the patients were extremely debilitated from cancer, etc. The conditions observed suggest that the inflammation was of blood-borne origin and that the extreme debility provided a predisposition; two of the patients succumbed. He advises an early ample incision as the best means to keep the process under control; a malignant course is liable although rare.

70. **Necrosis of the Pancreas With Recovery.**—In Oehler's case the patient was a man of 39 who developed acute pancreatitis secondary to cholelithiasis. There was no fat necrosis and, after expulsion of the necrotic section, complete recovery followed. The urine contained a large proportion of sugar for a time, but after the pancreatic secretion found its way anew into the intestine all trouble from this source was at an end. The diabetes came on when the pancreatic secretion was diverted outward and ceased as it resumed its normal course. During the pancreatitis there was intestinal hemorrhage, possibly from changes in the mesenteric vessels.

75. **Callous Gastric Ulcer.**—Borszeky and Baron report exclusion of the pylorus in seven cases of indurated gastric ulcer; the pain, vomiting and eructations ceased at once; the patients were able to eat and took on flesh. Instead of gastro-enterostomy plus section of the stomach and suture of the stomach stump (Eiselsberg), they simplified the procedure materially by simply throwing a ligature around the stomach in the region of the antrum of the pylorus. They used stout silk for the purpose, drawing it up tight. Ulcers induced experimentally on animals and then treated in this way, by exclusion of the region, healed perfectly.

77. **Pathology of Cholelithiasis.**—Baron has been studying whether bacteria were to be found in the normal gall-bladder, whence come those found in the diseased gall-bladder, and what are the factors cooperating in disease and which are the most important bacteria concerned. The literature on the subject is compared with his clinical and experimental research. In a series of six cases in 1910 the conditions indicated in all that a cancer had developed first and had been followed by gall-stone production. The symptoms from the gall-stones were the first sign of trouble in some. In a previous series of seven cases conditions indicated infection from the intestines or from the blood and liver or both as an important factor; secondary muscular insufficiency is another frequent factor. The combination of typhoid and colon bacilli or tubercle bacilli, and of typhoid and cancer is not an infrequent finding in the diseased gall-bladder.

80. **Hematoma from Injury of the Skull.**—Strauss discusses in particular subdural hematomas. From 1908 to 1911 about 48 per cent. died of his fifty-four patients with fracture of the skull. An operation was done in nine cases and six of these patients recovered. In one case an extradural hematoma gradually developed in the four days after the accident; in the second case by the fourth day there were merely motor aphasia and slight right paresis, no signs of pressure on the brain or of injury of the skull, but roentgenoscopy revealed a crack in the left parietal bone and the symptoms soon grew worse, first right and then general convulsions and unconsciousness. The pupils were unequal but the pulse did not indicate pressure on the brain, but when it was exposed a small epidural accumulation of blood and a large subdural hematoma in the temporal region were found, with a small focus in the brain at the foot of the central fissure showing effects of contusion. The symptoms improved at once and soon entirely disappeared. The epidural hematoma had evidently developed first; the torn vessels in the pia gradually bled enough to induce the aphasia the second day, and, continuing to bleed, the large subdural hematoma formed by the fifth day, manifested by the convulsions and stupor. The symptoms from the subdural hematoma first compelled operative treatment; the small epidural hematoma causing the first stage of symptoms might have been absorbed spontaneously in time. The patient was a man of 33 who had slipped on the street and hit the left side of his head against the curb in falling. He felt no disturbance from it at the time, but his head ached the next morning and he felt a little dizzy when he tried to get up, so he stayed in bed. The third day he noticed that it was hard for him to find the proper words to use, and this aphasia became pronounced so he was admitted to the hospital the fourth day, the only other symptom then being the slight paresis of the right side.

84. **Roentgenoscopy of the Large Intestine With Oxygen Instead of Bismuth.**—Krauss gives a number of instructive pictures taken with the Roentgen rays after the large intestine had been cautiously filled with oxygen. Air, he says, is not so well adapted for the purpose and does not give such good contrast shadows. The method is too inconvenient for the stomach, but it has many advantages for roentgenoscopy of the large intestine. The catheter with which the oxygen is introduced should be left in place as some of the gas is liable to escape if it is removed.

Berliner klinische Wochenschrift

February 26, XLIX, No. 9, pp. 385-432

87 Origin of Pigmentary Layer of Retina. (Zur Entstehung des Retinapigmentes.) K. Kreibich.
88 Radium Emanations in Blood. (Emanationsgehalt des arteriellen Blutes bei Einatmung von Radiumemanation und bei Einführung derselben in den Darm.) J. Strasburger.
89 *Relations Between Hypophysis and Diabetes Insipidus. L. Frank.
90 *Peptic Ulcerations. (Statistische Bemerkungen über peptische Ulcerationen.) N. Paus.
91 Bacillus Fecalis Alkaligenes. (Vibrionenähnliche Formen des B. faecalis alcaligenes.) R. Pollak.
92 Appendicitis in Women and Its Factors. (Appendicitis beim Weibe, ihre Beziehungen zu den Adnexen und zur Tubenschwangerschaft.) H. Wohlgemuth.
93 Ozena and Diphtheroid Disease of the Throat. (Ozaena, chronische Diphtherie und Rachendiphtheroid.) L. Neufeld.
94 Tuberculosis Statistics. (Bemerkungen zur Tuberkulosestatistik.) J. Katz.
95 *To Separate Saccharose from Other Sugars in Body Fluids. (Eine neue Methode, um Saccharose von Dextrose, Pentose, Lävulose, Laktose, Maltose und Invertzucker in Urin, Speichel oder anderen Sekreten zu trennen.) L. K. Hirshberg (Baltimore).

89. **Relation of Hypophysis to Diabetes Insipidus.**—Frank reports a case which is like an experiment in the clinic, the peculiar circumstances causing disturbances similar to those induced in experimental research on the hypophysis. The patient, a man of 39, had epileptic seizures develop several years after he had tried to commit suicide by firing two bullets into his right temple. The balls could be seen in the head, one close to the cortex and the other close to the sella turcica. The latter bullet evidently kept up a constant mechanical irritation of the hypophysis, and the result was the same as in Schäfer's similar experiments on dogs, a permanent diabetes insipidus and tendency to adipose-genital dystrophia. Other data indicating a connection between the hypophysis and development of diabetes insipidus are cited.

including Hagenbach's case in which polyuria and polydipsia in a little girl were explained by a cheesy tubercle found in the infundibulum. Rosenhaupt has described a similar case, fever, thirst and polyuria coming on abruptly, and necropsy two weeks later revealing a sarcoma in the anterior lobe of the hypophysis. The conclusion seems inevitable that the intermediate part of the hypophysis is a gland with an internal secretion which controls the activity of the kidneys, and that essential diabetes insipidus in man is the result of excessive functioning of this gland. The brain affections which are usually accompanied by diabetes insipidus are those in which there has been traumatic concussion of the brain, and the region of the hypophysis is exceptionally liable to suffer in trauma of the skull. Resulting cicatricial changes may exert a permanent irritating influence on the gland, which is also liable with brain tumors, by direct pressure or by pressure from excessive amounts of cerebrospinal fluid.

90. **Peptic Ulcers.**—Paus examined the necropsy records at the Christiania pathologic anatomic institute and found records of peptic ulcer in the stomach in 2.77 per cent. of the 3,000 cadavers examined, 1898-1911, duodenal ulcer in 0.73 and esophageal ulcer in 0.03 per cent., a total of 3.3 per cent. of the total material.

95. Abstracted in THE JOURNAL, Feb. 17, p. 516, abstract 64.

Deutsches Archiv für klinische Medizin, Leipsic

CV, Nos. 3-4, pp. 179-448. Last indexed February 10, p. 447

96 Infantilism. (Klinischer Begriff und Pathogenese der Infantilismen.) N. Pende.
97 Electrocardiography in Arythmia. (Elektrocardiogramme von Arhythmieen.) F. Herzog.
98 Pulse Tracing as Index of Condition of Vessel Walls. (Bedeutung der Pulsform. Untersuchungen mit dem O. Frank'schen Spiegelsphymographen an gesunden und kranken Menschen.) E. Veiel.
99 Interpretation of Pulse Tracing. (Topographie, Entstehung und Bedeutung des menschlichen Sphygmogrammes.) O. Müller and E. Weiss.
100 Orthodiagraphy for Diagnosis of Incipient Enlargement of Heart. (Bedeutung der Orthographie für die Erkennung der beginnenden Herzerweiterung.) M. Otten.
101 Chemical Regulation of Respiration. (Chemische Atmungsregulation und Mittelkapazität der Lungen.) K. A. Hasselbalch.

Deutsche medizinische Wochenschrift, Berlin

February 29, XXXVIII, No. 9, pp. 393-440

102 Roentgenoscopy of Swallowing Act. (Bewegungen der Speiseröhre unter normalen und pathologischen Verhältnissen—auf Grund röntgenkinematographischer Untersuchungen.) F. Kraus.
103 *Surgery of the Pancreas. (Zur Pankreaschirurgie.) Hinz.
104 *Sterilizing Power of Alcohol. (Keimtötende Kraft des Alkohols.) Schumburg.
105 *Acquired Syphilitic Joint Disease. (Gelenkerkrankungen bei erworbener Syphilis.) F. Bering.
106 Congenital General Hydrops. (Die angeborene allgemeine Wassersucht.) W. Fischer.
107 *Etiologic Relations Between the Nose and Articular Rheumatism. (Aetiologische Beziehungen zwischen Nase und Gelenkrheumatismus.) M. Senator.
108 Sprue Plus Syphilis. (Zum Verlauf der Sprue.) E. Zabel.
109 Sterilization of the Unfit. (Zur Frage der Kastration und Sterilisation von Verbrechern und Geisteskranken.) O. Juliusburger.

103. **Surgery of the Pancreas.**—Hinz states that three of his six patients with acute pancreatitis were operated on and two recovered; the third died as the necrotic process was too extensive when the patient was first seen to permit of recovery. The other three patients under merely expectant measures all died. One of the patients had a pulse of 96 and yet the operation revealed such extensive necrosis that recovery without the operation would have been almost impossible. This shows the folly of waiting for a pulse rate of 100 before attempting an operation. All these six patients were unusually corpulent; all but one were women, the age ranging from 22 to 67. In three cases there had been vague pains and discomfort in the stomach region at times, evidently premonitory symptoms of the pancreas affection. One of these patients had had gall-stone colics. In the three other cases the pancreatitis came on suddenly in an acute and severe form, the pains localized in the stomach region in one case and diffuse throughout the abdomen in the others, leading to the diagnosis of appendicitis. The pain was described as a sharp burning sensation, continuous, with incessant distressing eructations and a rancid taste in the mouth. The abdomen was distended and no stool or flatus was passed, although there was not complete retention. No resistance in the pancreas region could be palpated except in two cases during the later stages. In two cases the appendix region was most tender; in the others, the area over the pancreas. Another tender point was found in two cases in the back below the left twelfth rib; this served to differentiate the pancreatitis from a gall-bladder trouble in one case. In a seventh case fatal necrosis of the pancreas developed in a man of 51 after an operation for ileus. He was obese but had previously been healthy. The manipulation of the transverse colon and its mesentery had probably injured the pancreas. In an eighth patient, a girl of 17, an abdominal contusion had caused laceration of the parietal peritoneum and some contusion of the pancreas, but the patient recovered after the omentum had been sutured and the lesser omentum drained. In two other cases pseudocysts following acute inflammation were successfully drained, the resulting fistulas healing in a month or three months. In two cases of malignant disease of the pancreas the diagnosis was based on the local resistance, its position in respect to the stomach and transverse colon and the absence of lactic acid in the stomach content, with the hydrochloric acid normal or above normal.

104. **Sterilizing Power of Alcohol.**—Schumburg calls attention to the fact that the sterilizing action of alcohol has generally been tested on bacteria in specimens on threads, beads or cover-glasses. Under these conditions the alcohol can gain access to only one side of the specimen and it is unable to display its full powers. The bacteria are all almost instantly killed when, in a suspension, they are dropped into alcohol which is thus able to attack them on all sides. The bactericidal action of absolute alcohol and denatured spirits under these conditions, he says, is fully equal to that of a 1 per thousand solution of mercuric chlorid.

105. **Syphilitic Joint Disease.**—In seven of the eleven cases reported there were no manifestations of the syphilis at the time except the joint trouble. In four cases there were manifestations corresponding to a late phase of the disease. In nine cases the joint trouble developed insidiously, with only slight subjective symptoms; the effusion in the joint kept increasing the longer specific treatment had been delayed. There was occasionally a remission, but the process was progressive on the whole. In two patients the onset of the joint trouble was sudden and intensely painful, the effusion developed in a few days. One patient had had acute articular rheumatism three months before; his syphilis had been contracted eight years before. In the other acute case the syphilis was of only a few months' standing. The ankle, knee or sternoclavicular joint alone was affected in three or four cases each and the elbow alone in two; several joints were involved in two cases. The Wassermann reaction was positive in ten of the eleven patients. The absence of fever and of heart symptoms, the slight pains and lack of hindrance of movements of the joint, and the insidious onset are the most characteristic features, also the comparative harmlessness of the arthritis. Under specific treatment the affection promptly subsides without leaving a trace unless irreparable lesions have already been installed. Salicylic medication does not seem to have the slightest effect on the process.

107. **Connection Between Lesions in the Nose and Articular Rheumatism.**—In the case reported by Senator and in two others he cites from the literature, a minor operation on the nose was followed in four or five days by a typical attack of acute articular rheumatism. He cites other data to confirm the etiologic connection between lesions in the nose and this disease, emphasizing the necessity for cautious treatment after operations on the nose, and also the necessity for examination of the nose as well as the throat in all cases of articular rheumatism. The protecting powers of the nose are reduced by the operation, and infection results—not virulent pyemia but only the attenuated pyemic form, the so-called acute articular rheumatism. The assumption that acute articular rheumatism is an acute infection with attenuated pyemia is sustained by the data presented.

Deutsche Zeitschrift für Chirurgie, Leipsic

February, CXIII, Nos. 5-6, pp. 427-698

110 *Ureterostomy. K. Frank.
111 Predisposition to Hernia and Traumatic Hernia. (Zur Frage der Bruchanlage und der traumatischen Hernie.) F. Zollinger.
112 *Transplantation of Bone. (Zur freien Knochenüberpflanzung.) N. J. Baschkirzew and N. N. Petrow.
113 *General Anesthesia, Especially with Oxygen and Compressed Air. (Studien zur Narkosenfrage, insbes. über die Anwendung von Sauerstoff und komprimierter Luft.) A. Brüning.
114 Injury of Duodenum. (2 Fälle von Duodenalverletzung.) F. v. Winiwarter.
115 Regeneration of Gall-Bladder with Recurrence of Gall-Stone After Cholecystectomy. H. Flörcken.

110. **Abdominal Ureterostomy.**—Frank's review of the experiences on record with implantation of the ureters in the intestine, shows that the conditions afterward are far from satisfactory either in regard to continence or prevention of ascending infection. He reports a personal case of exstrophy of the bladder treated with what might be called ureterotrigonosigmoidostomy. The boy still had a fistula when last heard from. Other methods of implantation in the urethra, etc., have not given good results on the whole; Rovsing has been more successful with lumbar ureterostomy and Zuckerkandl's method of implanting the ureters in the abdominal wall seems to be still better. Frank reports the details of four cases in which the latter technic was applied. He does not hesitate to affirm that the ultimate outcome and safety of this technic render it far superior to all other means to date to divert the urine from a hopelessly diseased bladder or after removal of the entire bladder. The ureterostomy does not require general anesthesia and the whole procedure is outside the peritoneum. The mouth of the ureter was sutured in the first two cases just above the crest of the ileum, over the anterior margin of the quadratus lumborum. In the third case the ureters were brought out through the skin on a level with the umbilicus, on a line with their natural course. The kidneys were much below par in this case but soon recuperated and the patient is now in the best of health, seven months later, and is able to keep herself dry and the portable urinal aseptic. In two of his four cases the patients had been driven to morphin by their painful bladder trouble, but the morphin was dropped after the operation.

112. **Transplantation of Bone.**—In this communication from the St. Petersburg Medico-Military Academy extensive animal experimentation is described and illustrations given of cases in which a long bone graft was implanted. The results confirm the possibility of successful transplantation provided the implanted bone is living and is taken from the subject or from another of the same species. Illustrations of one patient four years after the graft showed that an autoplastic shaft of bone, from the fibula on the left leg, 9 cm. long, taken out of its periosteum, healed in place and functionates perfectly, taking the place of the right ulna which had been removed for supposed sarcoma, although the lesion proved to be tuberculous. The illustrations show further the regeneration of the fibula from the periosteum which had been left in place, a stout although rather uneven new fibula resulting. A scrap of the grafted bone showed under the microscope many dead but also numbers of living bone cells. Grafts and consecutive regeneration proceed far more satisfactorily when autoplastic material is used.

113. **Oxygen as Vehicle for Anesthetic.**—Brüning's arguments apparently disprove the assumption that oxygen is an aid to the anesthesia either by its chemical or physical action. Both oxygen and compressed air induce changes in the mouse lung, but they are more severe with the compressed air. His experiments indicated that lack of moisture in the compressed air is responsible for this injury, and that it can be avoided by saturating the air to 50 or 80 per cent. with steam, but too much moisture is as injurious as too little.

Medizinische Klinik, Berlin

March 3, VIII, No. 9, pp. 343-384

116 Disease and Dropping Out of the Hair. (Alopecie und Defluvium.) F. Laithlen.
117 *Indications for Operative Treatment of the Enlarged Prostate. (Indikationsstellung zur operativen Behandlung der Prostatahypertrophie.) P. Janssen.
118 Paratyphoid Bacilli in an Ovarian Cancer. (Paratyphus-B-Bacillen in einer carcinomatösen Ovarialcyste.) G. Seiffert.
119 Three Primary Cancers in Woman of 74. (Zur Multiplizität primärer Carcinome.) W. Altschul.
120 Lack of Thirst. (Zur Frage der Oligodipsie.) Jungklaus.
121 Treatment of Bladder Tumors. (Zur Therapie der Blasengeschwülste.) R. Kutner and L. Casper.
122 Plants Sought by Ants. (Ameisenpflanzen.) W. Wangerin.

117. **Hypertrophy of the Prostate.**—Janssen is convinced that it is often possible and advisable to relieve the disturbances from the enlarged prostate by diverting the urine. This leaves the natural outlet in peace and congestion subsides. In some cases this is sufficient to restore permanently the permeability of the natural passage; in other cases the palliative operation may be required again, but it is comparatively insignificant and can easily be repeated at need. The enlargement may be the result merely of local congestion from a sedentary occupation, and he said it would be like shooting at sparrows with a cannon to advise prostatectomy in such a case. Treatment should aim merely to restore normal conditions in the local circulation; when this is done the hypertrophy subsides of itself. Dietetic and hydrotherapeutic measures and suitable exercise may be all that is needed, especially cool daily sitz baths, massage of the legs or daily, non-fatiguing walks. "Catching cold" must be scrupulously avoided, and the patient should not drink anything later than 6 p. m. Defecation should be rendered easy. If these measures are persevered in the patient with mild trouble from beginning enlargement of the prostate may be permanently freed from all disturbance. In a more advanced stage, endovesical and instrumental measures are required, and with the above measures may tide the patient over an exacerbation. Janssen insists that as long as the urine is clear and aseptic, the physician should keep the catheterization in his own hands; only the most intelligent elderly men of leisure can be safely entrusted with the catheter for them to use themselves or have their attendants use it on them. Janssen warns further that extreme distention of the bladder, even once, may injure the muscles and nerve terminals in the elderly beyond recuperation. When a radical prostatectomy is not possible, a slanting fistula into the bladder, according to the Witzel technic, is a procedure which he thinks deserves wider adoption. It is so simple that it can be done by any surgeon. Under infiltration anesthesia sufficient for a 1 cm. incision of the skin, the skin is incised three fingerbreadths from the median line, below the umbilicus. Through this small incision a stout curved Fleurant trocar is introduced, slanting, till it reaches the centre of the symphysis. The point of the trocar is then pushed inward above the middle of the symphysis until it pierces the wall of the bladder previously distended to its maximum. After pulling out the guide, a narrow tube (No. 13) is introduced through it. The tube is measured so that a part two and one-half times as long as the trocar is introduced through it; then by drawing it out to the length of the trocar the latter can be removed. The patient can then empty his bladder at will by removing the stopper from the tube. Janssen has found that conditions were often so improved by this simple slanting fistula, cystostomosis he calls it, that no further procedures were necessary in some cases; in others it permitted the needed prostatectomy later, while some patients found it so satisfactory that they cling to it permanently.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

February, XXVI, No. 2, pp. 123-264

123 *Delivery After Antefixation of Uterus. (Behandlung der Geburt nach operativer Anteflexion.) F. Schauta.
124 Biochemical Factors in Menstruation. (Zur Pathologie der menstruellen Blutung.) G. Klein.
125 Pirquet Streptococcus Skin Reaction in Puerperal Fever. (Kutanreaktion bei Sepsis puerperalis.) R. Köhler.
126 Cervical Cesarean Section with Double Uterus. (Sectio caesarea cervicalis bei einem Fall von Verdoppelung der Genitalorgane.) W. Benthin.
127 *Vaginal Cesarean Section in Eclampsia. (Vaginaler Kaiserschnitt bei Eklampsie.) W. Beckmann.
128 *Pain in Sacral Region. (Entstehung und Behandlung des Kreuzschmerzes.) A. Theilhaber.
129 Retro-Uterine Hematocele from Fecal Stasis. A. Wolff.
130 Ascending Urogenital Tuberculosis in Women. (Zur Frage der aszendierenden Urogenitaltuberkulose beim Weibe.) H. Engelhorn and P. Jung.

123. **Labor After Ventrofixation.**—Schauta deplores the increasing tendency to deliver women by cesarean section when the cervix is drawn upward and backward as the result

of antefixation. He is convinced that much more might be done in the way of natural delivery instead of overhasty proceeding to operative measures. In four cases in his experience the exaggerated anteflexion seemed to forbid natural delivery, but by traction on the cervix, version when necessary, drawing down a foot and suspending a weight from it, it proved possible to turn the expelling forces into the proper direction and labor then proceeded naturally. His latest patient was an viii-para with pendulous abdomen reaching half way down the thighs. The vaginal portion of the cervix was very high up and far back, reachable only with the entire hand. Under complete anesthesia he introduced his hand, grasped the right foot and suspended a weight from it; an hour later the child could be delivered naturally. It weighed 4,850 gm. and measured 58 cm. The great obstacle to natural delivery is the buckling of the uterus on itself, forming a protruding spur which the fetus has to override. The looser the ventrofixation the better the outlook for subsequent pregnancies. In case operative measures are unavoidable, Schauta advocates sagittal slitting of the anterior lip of the os and cervix; this is indicated especially after vaginofixation, watching carefully to see that the bladder is not imperiled. The metreurynter answers the same purpose as weighting the foot, pulling the os down into line with the expelling forces, and straightening out the projecting spur. The traction should be moderate and continuous.

127. **Vaginal Cesarean Section for Eclampsia.**—Beckmann reports from St. Petersburg that during the last two years he has made a point of delivering at once by vaginal cesarean section all women brought to the clinic with eclampsia, without wasting any time on other measures. The mortality among 210 women given conservative treatment in 1904-9 was 32.9 per cent., while it was only 18 per cent. among the forty-three women treated by immediate vaginal cesarean section. None of the children of the multiparæ died and only four of the primiparæ—three during extraction and one before the operation. One woman has passed through a normal pregnancy since, two through abortions at the fourth month; scarcely a trace of the operation could be found. After the vaginal cesarean section only seven patients had from one to five more convulsions, four had from five to ten and one eighteen, while in the other 72 per cent. there were no further convulsions. This material is tabulated under various headings and compared with others on record. Beckmann is convinced that it speaks strongly in favor of this method of treating eclampsia.

128. **Sacral Pain.**—Theilhaber discusses the various causes that may induce pain in the sacral region, and says that in treatment, besides hydrotherapy, climatic measures, spa treatment, superheated air and arsenic, he has sometimes applied venesection with good results, which sustained his assumption that venous stasis in the spinal canal might have something to do with the pains.

Münchener medizinische Wochenschrift

February 27, LIX, No. 9, pp. 457-512

131 *"Transplantation Immunity." (Ueber Transplantationsimmunität.) G. Schöne.
132 *Neuritic Brachial Diplegia. J. Hoffmann.
133 Toxicity of Urine and Serum in Eclampsia. (Harn- und Serumtoxizität bei Eklampsie.) P. Esch.
134 The Cortex and the Mind from Biologic Standpoint. (Ueber die Ubiquität der senso-motorischen Doppelfunktion der Hirnrinde als Grundlage einer neuen biologischen Auffassung des kortikalen Seelenorgans.) C. Jakob.
135 Lumbar Puncture and Examination of the Fluid. (Zur Technik der Untersuchung des Liquor cerebrospinalis.) Reichmann.
136 Unfavorable Action of Salvarsan on Blood Diseases. (Einwirkung des Salvarsan auf die zelligen Elemente des Blutes.) G. Schwaer.
137 *Collapse After Intravenous Injection of Hormonal. (Zur Kenntnis der Hormonalwirkung.) J. Kretschmer.
138 Therapeutically Active Constituents of Mineral Muds. (Die therapeutisch wertvollen Inhaltsbestandteile der Moore.) M. Winckel.
139 Art of Medicine in Japan. (Die Entwicklung der japanischen Medizin.) J. Schuster.

131. **Transplantation Immunity.**—Schöne's work on rats and mice indicates that animals previously treated with scraps of tissue respond in a different manner to implantation of tissue than the controls, the findings suggesting a kind of immunity process. The facts observed may have some bearing on the fate of transplanted flaps in the clinic.

132. **Neuritic Brachial Diplegia.**—In Hoffmann's three cases the patients retired apparently in perfect health and when they woke each presented the typical syndrome of brachial diplegia, both arms being completely paralyzed alike, with intense pain. The further course of the affection, the atrophy, reaction of degeneration, tenderness of the nerve trunk, paresthesias, the peripheral type of the sensory disturbances, and the gradual complete recovery by the end of two years—all confirm the assumption of brachial neuritis as the cause of the trouble. The patients were 9, 25 and 60 years of age. The lack of fever and of general symptoms testified against acute poliomyelitis. The symmetry of the paralysis was not quite absolute, and Hoffmann is inclined to believe that among the cases of acute poliomyelitis on record, in some of the patients the trouble was of this neuritic type instead.

137. **Collapse Under Hormonal.**—Kretschmer made an intravenous injection of hormonal in the 32-year-old wife of a physician, a few weeks after an attack of catarrhal jaundice, but the injection was followed by immediate collapse so severe that it required three hours of the most vigorous stimulants to ward off a fatal termination. The patient was given, among other measures, 25 c.c. of a 30 per cent. solution of caffein in the three hours; the best effects were attained with epinephrin saline infusion. The temperature by the second hour was 37.5 and by evening was only 37.9. She recovered in the course of a week; the circumstances excluded air embolism, which the symptoms suggested. Dittler and Mohr have also reported a severe collapse after an intravenous injection of hormonal, the blood-pressure dropping, and this effect has also been observed in animals under administration of the extract. In both the above cases the patients were in late convalescence from a febrile affection.

Virchows Archiv, Berlin

February, CCVII, No. 2, pp. 161-320

140 Compensating Hypertrophy of the Lungs. C. Da Fano. Commenced in No. 1.
141 Cancerous Degeneration of Teratoma. (Karzinomatöse Entartung eines zystischen Mediastinalteratoms.) W. Ceelen.
142 *Atrophy of Testicle Following Mumps. (Hodenatrophie nach Parotitis epidemica.) H. C. Hall.
143 Origin of Giant Cells in Tuberculous Testicle. (Herkunft der intrakanalikulären Riesenzellen bei der Hoden-Tuberkulose.) F. Lotsch.
144 Fibromyoma of Seminal Vesicle. (Fibromyom der Samenblase.) W. Ceelen.
145 Changes in Epithelium Under Influence of Diuretics. (Die Mitochondria in den Epithelzellen der gewundenen Nierenkanälchen bei der Einwirkung einiger Diuretika—Koffein und Theocin.) K. J. Hjelt.
146 The Vessels in Congenitally Displaced Kidney. (Nierengefässe bei angeborener Nierendystopie.) N. N. Anitschkow.
147 No Retrograde Transport in Portal or Mesenteric Veins. (Zur Frage des retrograden Transportes im Pfortadergebiete.) T. Yatsushiro.
148 Development and Adaptation of the Joints. (Anpassungslehre, Histomechanik und Histochemie.) R. Thoma.
149 Experimental Research on Pancreas and Fat Tissue Necrosis. (Untersuchungen über Pankreashämorrhagie, Pankreas- und Fettgewebsnekrose.) W. Knape.

142. **Atrophy of the Testicle From Mumps.**—Hall found fibrous atrophy of the parenchyma of the right testicle at the necropsy of a young man who had died from gangrene of the bowel following an operation for movable cecum. The young man a year before, during an epidemic of mumps, had been treated for orchitis, the right testicle being swollen. The salivary glands were not swollen and under moist heat and bed rest the orchitis had apparently entirely subsided by the end of the second week. The young man had no signs of tuberculosis, gonorrhea or syphilis. The testicle during life had been of normal size and this is the rule in atrophy from mumps. Only one testicle is affected as a rule; Ringberg found bilateral orchitis in only thirty-three of 279 cases of orchitis in epidemic parotitis.

Books Received

Acknowledgments of books received, being ephemeral matter not necessary to be included in the bound volumes, appear on one of the advertising pages immediately following the reading pages.

Satisfaction in Automobiling

A Symposium by Physicians on Their Experiences with Motor-Cars—How to Secure the Most in Comfort and Help at the Least Expense

A COMPREHENSIVE SUMMARY FROM ONE YEAR'S EXPERIENCE WITH RUNABOUT

ABOUT a year ago I bought a small runabout (103), after having spent several thousand dollars on horses, buggies and drivers during the past thirteen years. During the last twelve months I have practiced medicine in more comfort, with more dispatch and with such satisfaction that I should almost prefer walking my rounds to using my phaeton again.

Of course, I have had punctures and trouble with the engine, but I can take a tire off and patch it and replace it in half an hour while a horse requires almost two hours to be shod. After my rounds are finished, the automobile is ready to take me any distance without a moment's delay, and situated as I am with my office a mile from home, the convenience of paying calls at a distance is incalculable.

COMPARISON OF COST

During the past year I have spent $282.62 for repairs and maintenance, which includes a set of new tires and several parts. I have driven approximately 6,000 miles. Therefore, it is very evident that for a physician, whether in town or country, if there be good roads, it is one of the most economical means of transportation yet devised.

Year after year I have spent $480, $500, and even $600, for a horse, phaeton and driver.

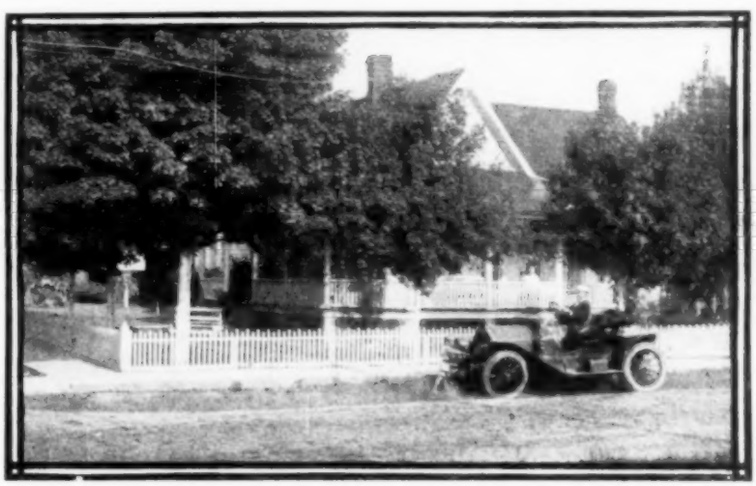


Fig. 1.—Dr. William L. Mosby, of Bardwell, Ky., with his 30 horse-power car (124*) in front of his "Old Kentucky Home." Dr. Mosby's article is on the next page.

A VALUABLE LIST OF CAUTIONS

Some of the practical things I have learned during a year's experience with the automobile are:

1. Not to crank the engine until one is black in the face.
2. To pour some gasoline through a petcock on the spark-plug or to pour it in the cylinder. This is useful to know on a cold morning; and the garage men might have forgotten to tell you.
3. Not to attempt to drive the machine if a knock is perceptible in the engine. Something is most likely loose, and to do so is risky.
4. To be sure that the oil gets to the bearings. I found a pipe stopped one morning and, although it was bitter cold, I took the sight-feed apart and cleaned it.
5. To go over my engine myself. Nobody is as much concerned about my neck as I am, and a cotter pin out of the steering-mechanism might cause the machine to fail at a turn and woefully endanger life.

I do not care to risk being stopped on the road by having dirt in the carbureter and so I strain all the gasoline through chamois skin.

I made a strainer by taking a large tin funnel and flaring out the spout with a round piece of iron and then tied a bag of chamois leather securely over it. This allows the gasoline to flow freely and it does not slip off.

The rear wheels are kept on by a pin going through the hub and axle and as it is a great strain on this pin, I have often found them broken. Serious consequences might ensue in case the wheel came off because of this. I frequently examine them to make sure. I broke a ball race in the front wheel once and came very near chafing through the axle but, luckily, I discovered it in time.

Another time I found that I could not change from low to high speed. I took off the top of the transmission case but found everything intact. Then I remembered having put some extra batteries loose under the seat. On investigation, I found that one of these had become jammed by the clutch lever and so I could not change it. I do not carry loose batteries there now.

CAREFUL DRIVING PAYS

I had observed that many drivers when changing to high speed throw the clutch in so suddenly that the machine jumps forward. I did likewise for some time until I came to a realization of the great strain on the engine and gears and wear on tires, so that now I slightly lift my foot from the throttle, push the high speed until it is about to engage, then wait for the engine to begin to take up the load, and then I push it to engage, thus making the change without the unpleasant jerk. After breaking a spring, I learned how to drop into a deep hole and get out again by taking my foot off the throttle, which takes one over without the bouncing that motorists know so well.

TIRE REPAIR AND PROTECTION

I have tried several devices to use up old blown-out tires and have found them of questionable service. One inner liner, made of heavy canvas, and to be laced around the inner tube before putting in the casings, is calculated to provoke wrath. I consumed two mortal hours in putting one in one day. They do not prevent blow-outs, they chafe the tube and cut themselves through in a single month, although they are guaranteed for ten months if put in a new casing, but I have used a new casing nearly a year without even a puncture. Then, too, $3.25 is pretty dear to pay for a yard or two of canvas and a few eyelets. The soft canvas blow-out patches are practically useless as they are not stout enough to withstand the air-pressure, and push through a comparatively small opening. The stouter ones (101*) I think are best. The outside patches are of little value except to get home with.

* "Automobile Key," giving names of cars, etc., will be sent to any address on receipt of a stamped addressed envelope.

because the metal lugs break and chafe the casing and cause an irregular bump on the tire that makes a tiresome thumping. I always carry tube patches, cement, an extra inner tube, a blow-out patch or two; and so far I have not yet been towed home.

I have never used chains but instead I put tread tires (102*) on the hind wheels at the beginning of winter, and I have not been stuck in mud but once or twice and then I doubt if chains would have availed me. Chains are hard on tires; and I have driven my machine when pedestrians could scarcely keep their feet on ice-covered streets.

I find the various cements and plastic rubber of little value in patching cuts in tires. I simply use the tire until there is a blow-out; then I put in an inside patch, and when the hole becomes too large I sell the tire as junk and buy a new one.

AVOID COMPLICATED DEVICES

I have continued to use dry batteries connected in multiple series of five each, as a source of current, and as they are reliable and not likely to get out of order I shall continue to use them. Magnetos are delicate pieces of machinery and I have not the time or inclination to tinker with too many pieces of machinery to keep them going.

I have not yet used any self-starting device, nor do I attempt any repairs which would require too much expenditure of time, as my time is worth more than a machinist's; and besides I do not attempt to tinker with as expensive a piece of machinery as an automobile. Such work as valve-grinding, replacing worn parts difficult of access and requiring special tools, I leave to the machinist.

I regularly see that the water-cooler and oiler-reservoir are filled daily, and that all movable parts are well lubricated and if I stop on the road I am well assured it is no fault of mine.

I have been using my machine all the year except about a week of intensely cold weather; when the temperature fell below zero I found it more comfortable to walk. The machine would have worked, however, had I desired to use it. The water in the radiator was prevented from freezing by the addition of ½ gallon of wood alcohol. I have used about 2 gallons this winter, costing $1.60.

THE CHOICE OF A CAR

As to the car most suitable for a physician: For the country a moderately high-wheeled one with solid tires is best, since the wear and tear on the mechanism of a low-wheeled car is very great if it has to plow through mud. I never quite saw the need for a four-passenger touring-car to practice medicine with, unless the owner desires to be separated from his money, as the maintenance is very much greater. It reminds me of using the family carriage to do one's rounds, when a buggy would do.

The owners assert that they want power and speed to convey a 150-pound load! My machine weighs 1,300 pounds, carries a 450-pound load, and is comparatively low horse-power, 10 or 12. Yet I can go faster than the law approves, and at the minimum cost.

GEORGE E. BARKSDALE, M.D., Richmond, Va.

THE HORSE PREFERABLE IN HILLY COUNTRY

MY automobile career began with a high-wheel, cable-driven car (122*) some years ago, and as road conditions were not the best and many hills presented more than 45 degrees elevation, this machine proved a failure and I soon disposed of this "hoped-for" luxury but real "trouble-maker" and returned to my horse and buggy, which I was forced to keep during these automobile days.

Later I purchased a real automobile (123*), with ample power and speed but with planetary transmission, which proved to be a mistake for our hills with such a heavy machine, requiring too frequent adjustment and making maintenance and gasoline bills run up into high figures. Last fall I purchased a roadster of "sliding-gear" type with seating capacity for two only (124). This car has four cylinders and is a 30 horse-power (ample for our roads and hills), and so far it has given splendid satisfaction, being always ready, positive in action, combining speed, beauty and power. [An illustration is on the preceding page.]

The sale of my first car brought me out even on the purchase. My second car cost me about $1,400, besides other expenses in connection with its use, over $100 being spent for tires during the time I was using it; and since purchasing the third car I sold the second for $200; all of this, however, should not be charged to this car, as it would have made a good machine for a level city with good paved streets. I used it one and one-half years.

In my opinion there is not much economy in the use of an automobile in country practice. I am compelled to keep one horse in the summer for rainy days, nights, off roads, etc., and two horses in winter, as I cannot use the car on our roads then. A good car under favorable circumstances is a "joy forever," and combines pleasure with business, but one should figure the cost carefully before investing and not take the manufacturers' dictum without a grain of salt on this line. One should also consider well conditions as to roads, ability to use personally and keep car in "normal health."

WILLIAM L. MOSBY, M.D., Bardwell, Ky.

* "Automobile Key," giving names of cars, etc., will be sent to any address on receipt of a stamped addressed envelope.

A SLICK STICK STUNT

WHEN an automobile is stuck in a mud hole, several miles from a pair of mules, it is calculated to inspire ideas as to how to get out of the difficulty. Last month I experienced just such a predicament, and the position of the car in the mud hole was so peculiar that an unusual method was resorted to to relieve the situation.

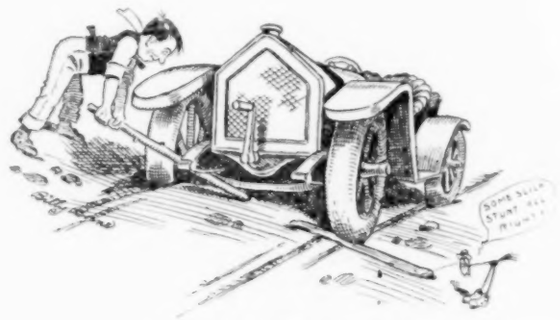


Fig. 2.—A slick stick stunt.

The right front wheel was in mud above the axle, the left front wheel, however, was higher and on more solid ground, causing a tilt of about twelve degrees to the machine. The two back wheels, with chains on, were in mud of several inches depth. If the right front wheel could be gotten out of the hole by shifting the front of the car over to the left, where the mud was shallow, then the car could be run through.

A stick, about 3 feet long and 2 inches in diameter, was found in the mud and water and, in consequence of having been there some time, was very slick. After jacking up the left front wheel and placing the stick under it, cross-wise with the road, the wheel was let down on this stick. Then with a hatchet a stout pole was cut and placed under the right front spring, lifting the machine and allowing it to gradually slide over the slick stick. It was surprising how easily the front of the car could be shifted over by this method.

JEBE E. COCKE, M.D., Asheville, N. C.

Heat in Winter from Engine.—I have been keeping my auto very comfortable in the coldest weather by putting on all curtains and raising the floor-board, leaving a space open the length of the board and about two inches in width. Enough heat comes through this space from the engine to keep the occupant very comfortable.—L. REPPERT, M.D., Muscatine, Ia.

SOME OPINIONS ON THE TIRE PROBLEM

CUTTING DOWN TIRE EXPENSES

SO long as we have to depend on a cushion of air in an envelope of rubber the problem of tire expense and the annoyance of delays on the road will be a live issue. The general quality of tires has steadily improved, and it seems that the limit of strength and endurance with present materials had about been reached by the best manufacturers. To us who often have to drive fast and to whom delay may be calamitous, freedom from tire worries is of the greatest importance. Cars as now made are about as dependable as any piece of mechanism can be, and delays from failure of motive power are comparatively rare.

TIRE ACCESSORIES ARE EXPENSIVE

To the man who must get there on time the demountable rim has been a godsend. He can feel secure that in case of failure of a tire he has another ready inflated which can be very quickly applied. But the expense of carrying two extra rims with casings and tubes complete—for less than two will give no great security—is considerable. Even when carried in a tire-trunk or protector the spare tires, after once having been applied to a wheel and later removed, deteriorate rapidly. Tire-protectors of various sorts, both inside and outside, are on the market in number almost legion. A good outside tire-protector costs nearly as much as a new casing, and even if it does double the life of the casing, as is frequently claimed, it is like wearing eight tires instead of four.

Figs. 3 and 4.—Minnequa Hospital of the Colorado Fuel and Iron Company, Pueblo, Colo. The left-hand view shows the west wing, the other, the front of the hospital. The hospital is built in Spanish mission style, the several wings being connected by open corridors. All rooms are outside rooms, each facing drives or open grass courts. The hospital is situated in a twenty-acre wooded park. There are no stairways or elevators; inclines are used instead. The statue over the center of the building is of "Luke, the Beloved Physician." The portraits on the wing are of Hippocrates, Pasteur, Jenner and N. S. Davis (in the center, third from left). These portraits are done in glazed tile and fired just as chinaware is painted and fired. The work was done by a local Pueblo artist. The employees of the company number about 12,000, in the steel works at Pueblo and the mines, which are scattered through Colorado, Wyoming and New Mexico. The hospital has 200 beds and employs eleven physicians. With the physicians at the mining camps, this makes a force of over thirty physicians who give their whole time. In the picture on the left are shown some of the attending staff with the automobiles (197) which they use. Photographs were sent by Dr. R. W. Corwin, Chief Surgeon.

FOR TIRE ECONOMY GET A LIGHT CAR

The importance of tire care, such as avoiding oil, repairing small cuts in the tread, keeping up full inflation and the like, is generally recognized and a little time thus spent is well paid for by the longer tire life. But after making somewhat of a study of this tire problem I am forced to the conclusion that the nearest approach to a solution lies more among the fundamentals. It is not the selection of any particular make of tire or any protective device. My experience has been—and my observation of others coincides with it—that the generally accepted standard tires are much alike in the long run, it is more in the selection of the car. Other things being equal, the heavier the car the greater tire wear, but there is more to the problem than a simple matter of relative weights. Of course the man with the big heavy car expects to buy more rubber than the man with a light runabout. Freedom from tire troubles of all kinds, barring certain accidents and apparent runs of ill luck, with which any man who has driven much is familiar, will decrease on cars of the same weight as the size of wheels and tires increases.

FOR TIRE ECONOMY USE LARGE TIRES

To illustrate, my car is of the five-passenger touring type (131) and weighs about 2,400 pounds. My tires are 36 by 4 inches. I see another car made to carry seven and weighing 4,200 pounds with tires 36 by 4½ inches. Either my car is overtired or the other is undertired. Overtiring is the first point in the scheme of tire freedom.

The fact seems to be that comparatively few makers of cars have fully appreciated the importance of this so-called oversize tire equipment, equipment with tires not only large enough to sustain the weight expected but larger, and the bigger the margin of safety the greater the freedom from tire trouble.

FOR TIRE ECONOMY USE AMPLE SPRINGS

The second point in my scheme is in the matter of springs. The more perfectly the road jars are taken by the springs the easier the car rides and the less the strain on tires. My car has four full elliptic springs. Persons riding with me for the first time rarely fail to speak of the ease with which I take crossings and other road irregularities, and the mileage I get from my casings is proof that the springs take their full share of the strain. I now have one tire with the same air, on which the car has traveled about 6,000 miles. Another casing has gone 5,000 miles without a puncture and appears

to be good for another 5,000 at least. I often carry five persons for considerable distances over all kinds of roads and in all kinds of weather, and as fast as anyone should drive. I carry no unnecessary weight, however, for the frame of my car is laminated wood instead of steel and I have not the weight of a water-cooling system. The car has been driven nearly 30,000 miles and is three years old but will now give me 40 miles an hour if I want it, and last fall I drove from Hartford, Conn., to Boston, 125 miles, in four hours and three-quarters without a stop. From such experience there can be no doubt that a water-cooling system to this car is merely excess baggage.

FOR TIRE ECONOMY USE A WELL BALANCED CAR

There is one minor point in the scheme which, however, deserves mention. It is that of balance. A car which is so constructed that it tends easily to skid and swerve at speed will of necessity be hard on tires. I do not know how a prospective purchaser of a car can determine this point except by the experience of others with the same car. I have driven all winter; the car has been out every day but one, through the congested traffic and the suburbs, and a little into the beaten tracks on the country roads. My tires are all smooth treads and I have not had a chain on yet. In this connection, I believe the large wheels in proportion to the weight hold the secret.

I have used tires of three standard makes (130); there are but two of one make on the car now, and I can see little essential difference in quality. A casing which costs 20 per cent. more than one which may be generally supplied for given weight of car will give nearer 75 per cent. more service and will all the time give a remarkable freedom from all tire annoyances.

R. H. GILPATRICK, M.D., Boston.

TIRE PROTECTORS

IN a recent issue of THE JOURNAL it was suggested that correspondents discuss the efficiency of various accessories that make for better service, increased comfort and greater economy. A matter of vital interest to every motorist, especially to the physician, is tire up-keep.

I have driven a car during the past three seasons and find it indispensable both in practice and as a means of recreation. My touring-car (106*) weighs about 2,600 pounds and, naturally, is hard on tires. Being desirous of obtaining the longest mileage and to reduce blow-outs and punctures to the minimum, I investigated various protectors and reinforcements advertised and decided that the best method of reinforcing a casing was from the inside, and in the fall of 1910 I purchased a set of inside tire reinforcements (105*), made of four and five plies of frictioned fabric, formed and shaped to fit the inside of the casing and the plies vulcanized together in one body. One of my tires had an inside break in the fabric and was about to blow-out, but the reinforcement strengthened this point, enabling me to use the tire until the tread was honestly worn down, thus affording the maximum mileage that could be expected.

My experience is in every way satisfactory and I have not found that these reinforcements cause overheating or injury to the tube. I attribute this to the facts that I took pains to place them in the casing properly and that I keep my pressure up to the point recommended by the tire makers.

F. M. HINES, M.D., Auburn, Ind.

SMALL REPAIR CHARGES WITH AIRLESS TIRES

AS there are no signs yet of my 1910 single-cylinder runabout (108*) giving out, I shall continue to use it; it appears to run even better than ever. During the two years this machine has only twice failed to go and come and one of these failures was on account of the universal joint coming apart, which was put back by a machinist in a very few minutes, but I had to be pulled in. The other time was when the wire leading to the spark-plug burned off; then I was delayed one hour. Including the cost of one set of low-speed gears and other slight repairs my whole bill for repairs has only been about $29 since April 5, 1910. I have used this car almost every day and frequently at night, excepting three weeks during the year of 1911 and two weeks this winter. I have my garage heated with the city gas and can go in through a door from my residence; this is by all means the ideal location for the garage for a doctor's car. I used pneumatic tires on a car I bought in 1907 for one year and solid tires (109*) for two years on the same car. I never expect to buy punctures again. I have these tires on my rear wheels and airless tires (110*) on the front wheels. These tires are as near perfection as possible and are most economical.

J. E. ASAY, M.D., Rock Island, Ill.

PREVENT PUNCTURES FROM NAILS

THE following suggestion in regard to tire care and efficiency may be of practical value to automobile users. For some years, I have experimented on my own roadster (111) in the endeavor to find a means of preventing punctures caused by the picking up of nails. From various sources I have determined that in the majority of cases punctures are due to this cause alone. The appliance consists of a loop of ordinary bath-tub chain attached underneath each fender so as to lie constantly across the wearing surface of each tire. The chain does not wear the tire. It will be found that a nail, when first picked up, does not enter the fabric and cause the puncture, but only after several revolutions does the nail reach the inner tube and cause the damage. This device will remove the nail or tack before a complete revolution is made. After the great fire of 1906 in San Francisco, the streets were infested with nails, and punctures were numerous. The suspended chains were used by many autoists and punctures from this cause reduced to a minimum.

Fig. 5.—A method of preventing punctures from nails picked up by the tires.

FREDERIC LONG, M.D., Bakersfield, Cal.

KEEP TIRES PUMPED UP

ALTHOUGH my car (172) weighs 3,500 pounds, I get from 15 to 18 miles on a gallon of gasoline, due to the fine carbureter (173). I drove a smaller car (175) 37,000 miles during 1906 and 1907. During the next three years I drove another of the same make 43,000 miles. The first car, I understand, is still running every day in Sterling, Ill.

I do not think self-starting devices are reliable. One would hate to turn on the self-starter and strip the gears because the pump was frozen. The best plan so far is to get out and crank, then if the engine does not want to turn over easily one knows that something is wrong.

My tires (176) have run 5,540 miles with only two punctures, and are in good shape yet. Take no one's word as to how much air is in your tires, but purchase a gauge and see for yourself, keep them up to 75 or 80 pounds all the time.

Another wise thing to do is to clean out the old rusty water every week, and every other day give all the grease cups a turn or two. As for oil, by using a good quality (177), I never yet have been troubled with carbon.

Another good investment is to subscribe for the *Motor Age*, read it and ask any and all fool questions and the publishers seem more than willing to answer them. Make a study of your car out of the shop, for all cars are good and, with a auto magazine you will save a lot and will be able to keep your car out of the shop. As to using a horse—never again!

J. M. NICHOLSON, M.D., Chicago.

* "Automobile Key," giving names of cars, etc., will be sent to any address on receipt of a stamped addressed envelope.

THE FRACTURE OF THE WRIST BY BACK FIRING

AUTOMOBILE FRACTURES

THE advent of the automobile about a decade ago brought with it a new fracture which has been christened "chauffeur's fracture." It would really be more proper to say that the coming of the automobile brought a new source of producing a very old and well-known fracture—namely, a fracture of the end of the radius commonly called "Colles' fracture." It is my intent to deal strictly with this particular fracture and not mention the many others that may be accidentally produced from automobile injuries.

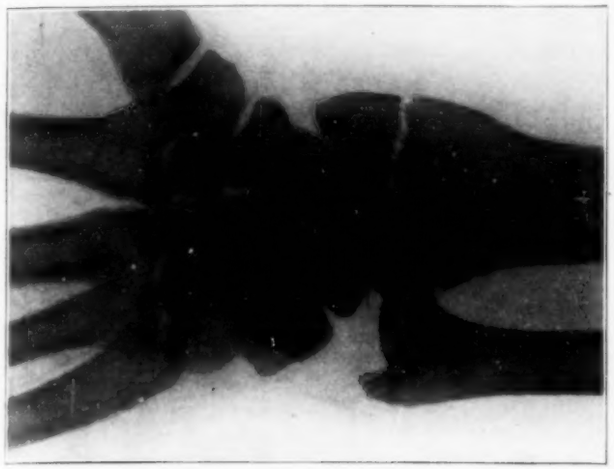


Fig. 6.—Skiagram showing typical "chauffeur's fracture."

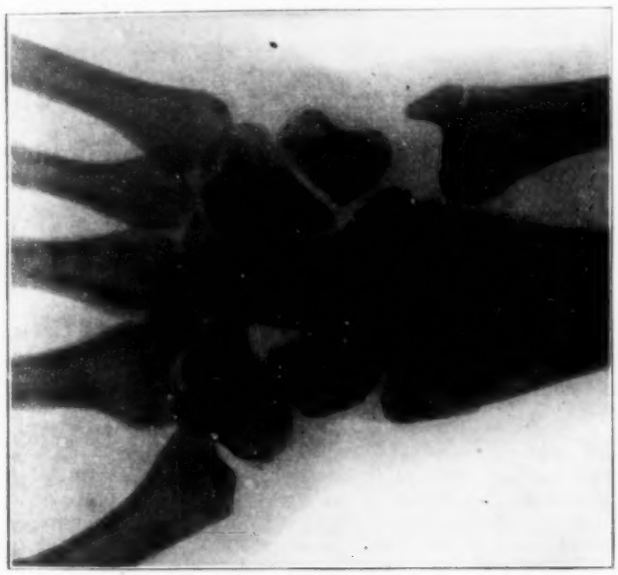


Fig. 7.—Normal wrist of boy aged 17.

This fracture is always produced from a "back fire" of the motor which suddenly throws the crank handle back in the opposite direction from which it is being turned. This is caused by a premature explosion in the cylinder, usually the result of the "spark lever" being too far "advanced," although it may be caused from a short circuit in the electric wiring or slipping of the commutator. This fracture is always produced by the back fire occurring when the handle is being pushed down, the resulting back-kick producing a blow on the palm of the hand, exactly equivalent to falling on the ground and striking on the palm, the resulting shock being transferred to the radius and this fractures at its weakest point, the epiphyseal line. Usually though the line of fracture does not follow this epiphyseal line entirely through the radius from side to side, but separates the triangular piece on the outer or thumb side as shown in Figure 6. This is due to two main factors; first, the fact that the epiphyseal line takes this direction (see Fig. 7) and, second, most of the force of the blow is on this side, due to the way the handle is grasped

Fig. 8.—Incorrect way of cranking motor.

Fig. 9.—Correct way of cranking motor.

Fig. 10.—Backward displacement of fragment.

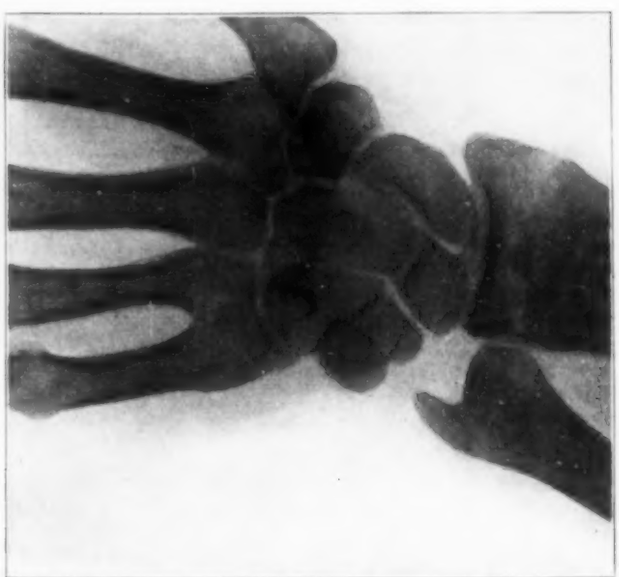


Fig. 11.—"Chauffeur's fracture": anterior-posterior view.

with the thumb around it, the pressure being exerted at this point. This style of fracture (Fig. 6) we designate as the "typical chauffeur's fracture," although in truth, there is no "typical" fracture. The majority of them, however, are of this kind and that is the excuse for this designation. This is fortunate, too, for the victim, for in this class there is little or no displacement of the fragment, reduction is unnecessary and the permanent results are good in these "Automobile Fractures," though the injury does not always assume this

type just described. In fact the line of fracture, the number of fragments, the amount of impaction, the backward displacement, the involvement of the styloid process of the ulna, the swelling, tenderness and pain may be just as varied as the Colles' fracture produced in the usual way.

If the injured person is 18 years old or younger, then a comparative radiograph of the normal wrist should always be made, as union of the epiphysis will not take place until that age. Figure 7 shows a normal wrist at 17 years of age; here the epiphyseal line of the radius can still be faintly seen and also the epiphyseal line of the styloid process of the ulna, and when this is fractured it is through this line. Figure 8 shows the incorrect way to crank the motor, which may result in these fractures and Figure 9 shows the correct way. Here the handle is grasped by the fingers only and quickly pulled up; then, should a kick result, the operator has a chance to get away before the crank gets around to hit him—although this may happen and a fracture result. Recently a crank-handle has been patented to prevent this accident (*Scientific American*, Jan. 6, 1912). This consists of a handle, the crank-lever of which is composed of two parts held together by a spring clutch. This will withstand any steady pull, but a sudden shock will break the handle in two, fracturing the handle rather than the wrist. At present many cars are being equipped with "self-starters"—certainly the ideal way—so that eventually the "chauffeur's fracture" will be of historical interest only, although we will have a greater or less number for many years to come.

Fig. 12.—"Chauffeur's fracture"; lateral view of Figure 11.

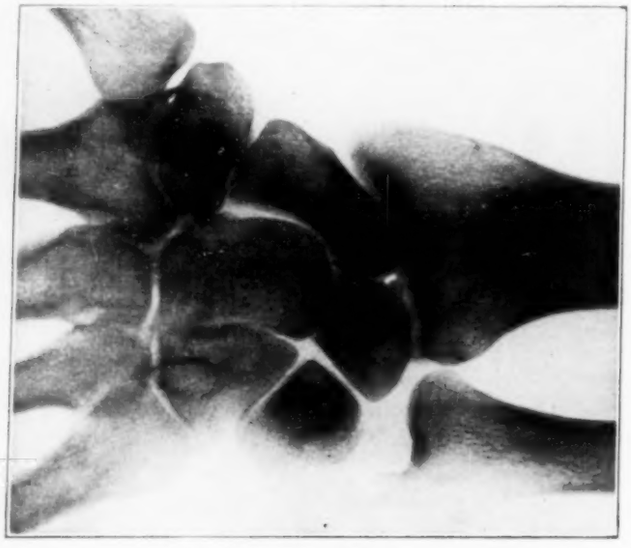


Fig. 13.—Normal adult wrist.

The radiograph has been of great value in the diagnosis and treatment of these fractures. When possible it should always be used as it is quick, painless and sure. Two views should always be made, one anterior-posterior with the palm on the plate and one lateral with the thumb up, the tube centered directly over the end of the radius. This lateral view is very important as it will show the amount of the deformity, if any is present. Frequently the anterior-posterior view will disclose no deformity when in reality there is great displacement (Fig. 5).

If any deformity is shown by the radiographs the fracture should be reduced, placed in an anterior-posterior splint in the usual way and then radiographed in the lateral direction only, to see if the position is good. This is better than working with the fluoroscope, as the pictures can be made quickly, there is no danger to the patient and a permanent record of the case is obtained.

Fig. 14.—Normal adult wrist, lateral view.

The "typical chauffeur's fracture" can be taken out of the splint within a week, massage and passive motion begun, and recovery should be complete in about three weeks. More severe types will require longer time.

WALTER IRWIN LEFEVRE, M.D., Cleveland.

THE BEST THINGS FOR THE AUTOMOBILE

AFTER five years' use of automobiles in the general practice of medicine I offer the following advice: Don't buy a second-hand automobile. Buy a new car and hold the company responsible for defects. The small runabout types are the most serviceable, most simply manipulated, most easily handled in a crowded street, most easily adjusted when out of order, and have the cheapest tire expense, both new and repairs.

The best brand of tires is always the cheapest; the best and always reliable starter is my strong right arm; the best antifreezing mixture is one pound of raw glycerin in one gallon of denatured alcohol; the best storm protector, as well as dust protector, is a coupé; the best carbon remover is "kerosene" coal oil; a good medium auto oil (156) can be bought for 35 cents a gallon; the best light is the perfected ready-to-use acetylene system (157); the best garage can be made of cement blocks for less than two hundred dollars; the best time I have made or care to make is ten miles in twenty-five minutes; the best load I have hauled was five sacks of cucumbers across a hay-field.

The accompanying picture (page 1071) shows a scene "down on the farm," the enjoyment of which is made possible with an automobile service. My first purchase was a second-hand runabout (158), which led me to make as my second purchase a new one of the same make. My next purchase, if any, will also be of this make.

WILLIAM D. WEIS, M.D., Hammond, Ind.

* "Automobile Key," giving names of cars, etc., will be sent to any address on receipt of a stamped addressed envelope.

ARCHITECTURAL DEPARTMENT: PLANS OF HOUSE, COMBINED WITH OFFICE* OR WITH GARAGE

GARAGE BUILT INTO REAR OF HOUSE

IN order to obtain good service from an automobile during winter it is necessary to have the garage heated. I have my garage (22 by 24 feet) built against the rear of my house (see illustrations), and, the house being heated with a hot-water system, it was but a small expense to extend the heat into the garage, and the cost and trouble of carrying the additional radiation is very slight. My office being in the part of the house adjoining the garage, the odor from gasoline and smoke does not annoy the rest of the household,

Fig. 15.—Dr. P. P. M. Jorgensen, Kenosha, Wis., with his roadster (159) for business and four-passenger car (159) for pleasure-riding.

Fig. 16.—Front view of same house as shown in Figure 15.

although I was advised before I built that this would prove a serious objection.

Besides the office and garage arrangements, the idea of having kitchen and dining-room on the second floor has been found very satisfactory. After ten years' experience of renting an office "down town" and four years spent in this house, Mrs. Jorgensen and I still find things so near what we want that if we were to build to-morrow there would be very few things we should wish to change. My two cars (159) are shown in the illustration. They have both given me excellent service. After a previous experience of two years with another make, I am satisfied that there is a great deal to learn before a man can decide intelligently what car to buy.

P. P. M. JORGENSEN, Kenosha, Wis.

*A number of articles have been published in THE JOURNAL recently, giving photographs and plans of houses in which physicians have offices. See February 10, March 9 and March 30, Department of Medical Economics.

COMMON SENSE AUTOMOBILE RULES

THE question is not whether a physician should keep a car, for a car is now an absolute necessity, but what kind of car. I do not mean what make, because there are any number of dependable cars, but what size and power. That must necessarily depend on the kind of work one expects it to do, and on the prevailing condition of the roads where one lives. In

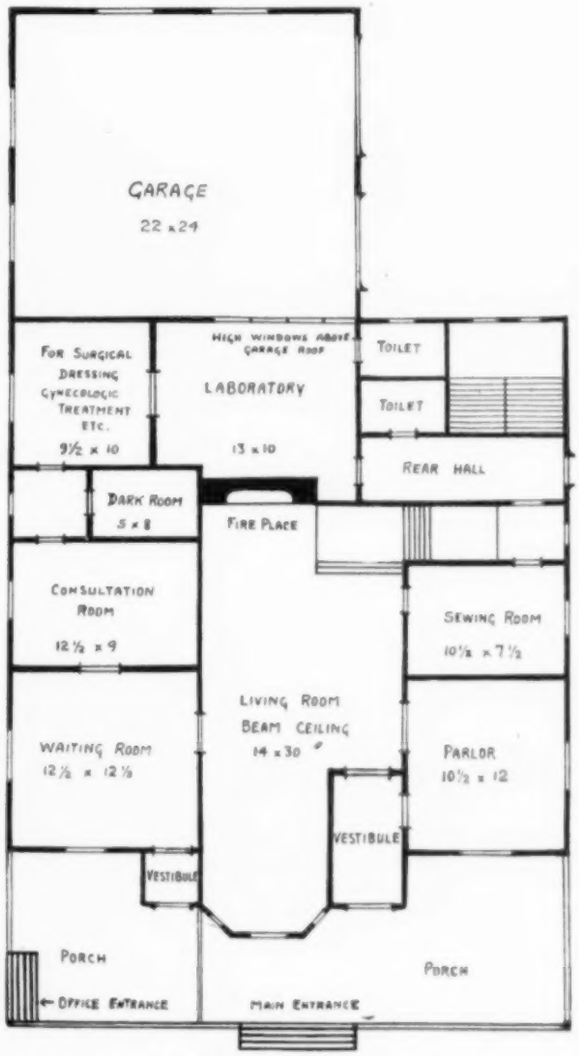


Fig. 17.—Plan of ground floor of house of Dr. P. P. M. Jorgensen, Kenosha, Wis., showing garage built into the rear of the house, the heating being done with one plant.

the north-western part of Illinois one needs a fairly heavy car of not less than 30 horse-power.

If I were to use a car for business only, I should buy a roadster, strong, speedy and reliable, of not less than 30 horse-power, and wheels not less than 32 inches, using a 4-inch tire. But with my plan of using it for both business and pleasure, my five-passenger car (125) has been very satisfactory. It has plenty of power and speed, and is noted in this community for its hill-climbing ability and for never being out of fix. I have run this car two summers, and during the winter of 1910-11, nearly all winter, on ice and snow, and in temperatures as low as 10 below zero. This winter it is impossible to run a car here, the snow being too deep. During the above-mentioned time I have run not less than 15,000 miles, and have never been stalled on the road but once, when

I slid into a washout and had to be pulled out with a team. I take care of my own car and do my own driving, and have had practically no trouble or expense, except tires and cleaning of cylinders once last summer. Except for paint and varnish, my car seems as good as it ever was, and I expect it to do service for many years to come. My first set of 4-inch tires (126) ran about 10,000 miles.

IT IS ECONOMY TO DRIVE CAREFULLY

I have learned by experience a few little things that help to prolong the life of the car and to save tires: First of all, do not drive fast unless absolutely necessary, 15 to 20 miles an hour; that applies to roads in the country where they are hilly and none too good. Slow up for bridges, culverts, and any rough place. Do not strain a point to make a hill on high gear; use intermediate or low. Keep the tires inflated properly; do not run on 40 pounds of air if in need of 70 or 80. There is only one way to know this, keep a pressure-gage and test the tires every morning; it will pay. I have shock-absorbers on my car, and I believe they pay; they certainly make easier riding. Of course, one must keep everything lubricated that should be, and everything tight that should be tight. If one follows these common-sense rules, having a car of the right size, made by a reliable concern, one will be delighted with the service one gets, and will never want to drive horses again.

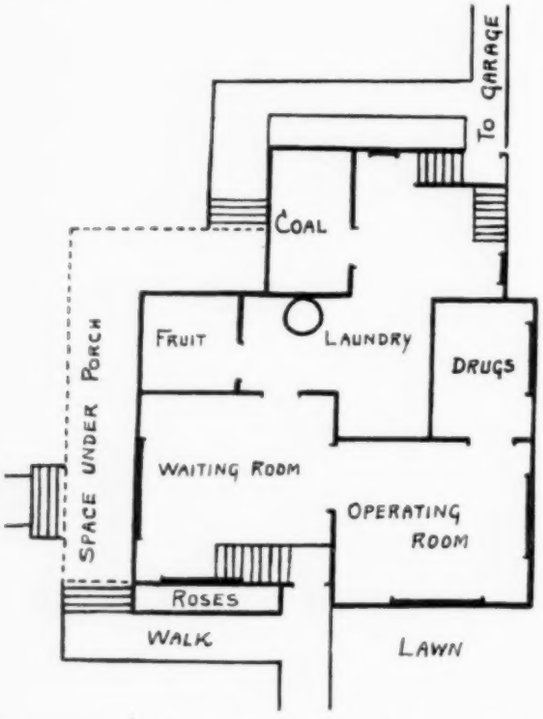


Fig. 18.—Basement plan of combined house and office of Dr. N. A. Kaa, Stockton, Ill. The view of the house is shown in Figure 22, on page 1058.

COMBINED HOUSE AND OFFICE

The plan of my combined house and office is perhaps unique in one respect; the office is in the basement (see illustration). This was done to economize; it would otherwise have been necessary to build a much larger house, to accommodate both office and family. I have tried it out for a number of years and find it very satisfactory. My place is about three-fourths of a block from the business center of the town. The basement is not very deep; one enters the door on a level with the street, and a few steps take one down. I have very large windows with opaque glass and concrete areas built around the outside to admit more light. My office, especially the operating-room, is very light. The concrete floor has several coats of paint, making it easy to keep clean.

The office can be entered from the inside by going through the laundry. There is an automatic bell on the door, announcing when any one enters. In that way I can be anywhere around the house and still know when I am wanted. Otherwise a man is tied to his office all the time, because, for some unknown reason, we cannot have any regular office hours in this town. I have hot and cold water in the drug room, a telephone on each of the three floors of the house. There is plenty of space around the house for a large lawn and a tennis court, where I, with other business and professional men, take much recreation in season.

N. A. KAA, M.D., Stockton, Ill.

GARAGE AND STABLE

THIS combined stable and garage I built in 1910 at a cost of $1,500. It is constructed of concrete blocks with slate roof which is thoroughly trussed; the lower floor is concrete except in the horse-stalls, which are planked, over 18 inches of cinders. The upper floors are of matched hard pine and the ceilings are beaded hard pine, in fact the entire interior is finished in hard pine, filled and varnished. The doors roll on Lane ball-bearings, which are adjustable to height and are grooved on the bottom to follow a track of ¼ by 3 inches iron imbedded edgewise in concrete with exposure of ½ inch. All windows are arranged to tilt in at the top at any angle for ventilation. Over the harness room is constructed a grain-bin to hold 100 bushels, which is lined with thin iron; a chute conveys grain to the lower floor. Under the stairs is located a case of deep drawers for blankets and horse apparel, while at the end is a cupboard for brushes, boots, harness and wagon greases. A chimney rises from the harness room and receives on the ground floor the pipe from a stove in one corner, which makes the building comfortable in cold weather and is convenient when blankets and robes are wet or harnesses are to be cleaned. In the garage, which is separated from the stable by a large rolling door, is an enamel iron corner lavatory supplied with soft water from a 40-barrel tank situated in the rear of stable. This tank receives water from nearly the entire roof of the building, affording ample supply for watering the horses and washing the car and wagons. The tank is emptied during the winter months.

Fig. 19.—Plan of Dr. Lewis' stable and garage.

A tap near the lavatory for hose is convenient to concrete wash-platform just outside. The corner opposite the lavatory is convenient for location of the oil tank.

Extending across the bow window end of the garage is a capacious work bench with vise, underneath which are two banks of roomy drawers and a cupboard, while at the right is the gasoline pump leading from a steel tank placed in a properly drained concrete pit situated 10 feet outside the building.

The building is lighted by electricity with concealed wiring and has a telephone. The accompanying view of the building is the rear, entered by drive from the residence. Enjoyment of this building, which was entirely designed by

Fig. 20.—The stable and garage of Dr. G. M. Lewis, of Vernon, N. Y., built at a cost of $1,500. A plan is on page 1056.

the owner, suggests nothing to be desired in the way of change or improvement.

G. M. LEWIS, M.D., Vernon, N. Y.

THE JOY OF AUTO RIDING

My single-chain drive five-passenger car (135), the salesman told me, would weigh 2,100 pounds. With radiator and gasoline tank full, with tool equipment, it weighed 2,400 pounds. It cost $775. It was too large and heavy for a physician. The tires, 32 by 3½, were too small for the weight and went to pieces long before the guaranteed mileage was attained. I sold it and in June, 1911, I bought a light runabout (136); actual weight equipped, 1,170 pounds. It is light, hence easy on the tires. I can go with it everywhere I could with the heavier car and more. It does not sink so deeply in the mud. I have been stuck but once, in a low, marshy place between two hills and at night. The car sank to the axles, the wheels spun; I jacked up and put on chains, but the wheels still spun. The power was there but the mud was so thin that there was nothing for wheels to pull on.

The speed limit in Missouri is regulated by law in the following language: "A rate of speed in excess of 25 miles an hour for a distance of ½ mile shall be presumptive evidence of driving at a rate of speed which is not careful—prudent." Our roads are very crooked, there being many sharp turns, the view being obstructed by trees and fences; the risk of running over 20 miles per hour is thus very great. My car is not so speedy as others but I can exceed the speed limit; I average 16 miles up hill and down hill over all kinds of roads. The machine is simple and easy to operate; it pulls up any hill; I can go anywhere there is a footing for wheels. My experience with both machines has been to keep out of the mud; it is unpleasant to go along on low speed through mud and slush. I now take the automobile only when the roads are dry. I see my confrères out in the mud with their machines but they don't make any better time than I do with my team. I average 18 miles on a gallon of gasoline. The first set of tires (137) lasted for 1,800 miles; they were guaranteed for 3,000 miles. The company allowed me for the 1,200 miles on a new set.

As for caring for one's own car, a physician who is fairly busy will have no time for this. I tried to look after my machine but found, when I needed it most, that something needed adjusting, and by the time I had it in shape I could have made the trip by team. An automobile is not so cheap as a team and buggy for the simple reason that one will ride for pleasure two or three times as much as for business. When the roads are good there is no riding comparable to an auto; I can make my calls in one-half the time and the trip is a pleasure in hot weather, instead of work as it is when one is driving a team over a hot, dry and dusty road. If one can possibly afford it, one ought to have an acetylene tank (151) or else electricity. The carbid generators are choking up and the lights are going out; the carbid generators have given me more trouble than the rest of the machinery combined. Also if one wants to avoid real labor one should have the car equipped with quick detachable rims.

F. M. VESSELLS, M.D., Perryville, Mo.

[Illustration near the end of the automobile section.]

Winter's Snows Need Not Stop the Auto.—I average 40 or 50 miles a day and have never hesitated, because of weather

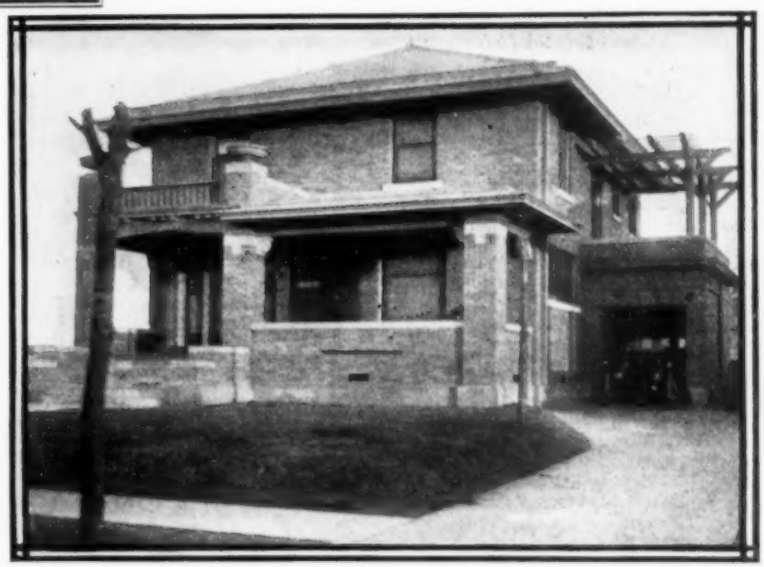


Fig. 21.—House, automobile (202) and garage of Dr. H. Leslie Moore, Dallas, Tex. The position of the garage is an original idea of Dr. Moore. The garage is located near the inner boundary of the lot and is built as a part of the house. Thus he can step from his automobile into the house and vice versa without going out doors. When starting he is in his automobile, ready to go, before being exposed to the weather. The garage can be heated from the furnace just as can the rest of the house. Dr. Moore reports that he is very much pleased with his garage and with his choice of an automobile.

or roads, to go out day or night. During three years of car driving I have never been stuck on the road except by tire trouble. During two hard blizzards I have driven through drifts and around cars of six to eight times the cost and have never had to walk home. My two-cylinder car (169) used to cost me, everything included, an average of $15 a month, my four-cylinder (169) $30 to $35 a month, and I am not a careful driver. I believe this car will stand more hard use than any other for the money.—PAUL B. MAGNUSON, M.D., Chicago.

AUTOMOBILE ACCESSORIES AND AIDS TO COMFORT

A SIX-CYLINDER ENTHUSIAST

MY automobile experience has been particularly fortunate, perhaps owing to the fact that my cars have been big and strong, equal to all emergencies and all the difficulties of bad roads and hills. When I put my 40-horse-power, four-cylinder car (163) into the shop last summer for overhauling, I was permitted to use a 48-horse-power, six-cylinder car of the same make until my car should be ready for delivery, but I never drove the "four" again.

The "six" showed such surprising advantages, in its ease of handling, its ability to slow down and pick up again quickly in traffic without change of gear, its splendid reserve of power for hills and bad roads, and its all-round masterful conduct, that I could never again have been content with the "four." I am a six-cylinder enthusiast, because I know the difference between the two types and it is my judgment that if one wants to get all the satisfaction and security that a motor car affords, if one wants always to be able to get there and back (without any doubt about it) and with minimum effort on his part, one needs a "six" to accomplish that result. In the period that I have had my "six," I have been at no expense for repairs and the air that is in my tires to-day is the same that has been there for at least five months.

ADVANTAGES OF A WARM GARAGE

I keep my car in a warm garage and find the expense, about $1.50 per month for heat, well paid for in the ever-readiness of my car. I never have to lose time waiting for the motor to warm up, because it is always warm. This is very important to a physician. Perhaps this warming-feature is one reason why I escape repair bills. A warm motor is not subject to the accidents that often occur to a chilled one.

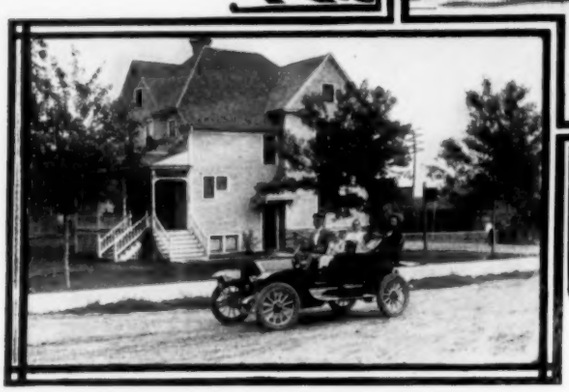


Fig. 22.—House, auto (123) and family of Dr. N. A. Kaa, Stockton, Ill. Dr. Kaa's office is in the basement, as shown in the floor plan (Fig. 18) on page 1056. The tennis court is shown at the right.

I do not, however, risk the item of repairs. Every three months or so (oftener if I have any misgivings) I send my car to the shop for a looking over. This examination has thus far failed to reveal any defects except the need for tightening a nut here and there. I drive every day and nearly every night the year around. I make from five to fifteen calls per trip, and all during the coldest weather I have not had to crank my motor more than a dozen times. The self-starter on my car is of the compressed-air type and it appeals to me because the air puts the pistons in motion before the spark takes place. The motor therefore escapes the shocks that are consequent on starting on the spark, a matter of importance, especially so when a car has been standing out in the cold for any considerable period.

When I purchased my old four-cylinder car, I had some ignition trouble but shortly afterward I equipped my car with a new set of spark plugs (164); and when I purchased my new "six" I used the four old plugs (with the addition of two new ones) and have not had to remove them since. I have had no more trouble from that source.

There is one thing more I am going to add to my car that I saw on a physician's car the other day, and that is a curtain that acts as a door in front. It is on a spring roller fastened perpendicularly and when one wishes the front closed tightly one pulls it back and hooks it to the bow of the top; when one wants it open, one merely unhooks it and it opens itself. This curtain is on the principle of a common window-shade roller, only a stronger spring is needed.

Fig. 23.—House and automobile (163) of Dr. S. E. Carlton, Cleveland.

Fig. 24. Dr. Perry Woolery, Heltonville, Ind., crossing a creek foot-bridge for pedestrians. "In a country practice like this," writes Dr. Woolery, "the auto has to be pressed into some pretty hard service, but mine (198) has never failed me yet. We also have a great many hills in this section, but most of the roads are macadamized."

My car carries a four-bucket seat-body and cannot be classed as a light weight by any means. I drive with reasonable care, especially when rounding corners and yet, in spite of weight, bad roads, and the like, I have had no tire trouble worth mentioning.

When a manufacturer equips a big car with big tires the proportion of tires to weight is fully as great a factor of safety as is to be found on little light-weight cars equipped with small tires. It seems to me as broad as it is long, and that no physician need deprive himself of the pleasure and comfort of a big car through fear of the tire bugaboo. If the wheel base is long, it adds to the comfort and pleasure as well as safety of the car.

S. E. Carlton, M.D., Cleveland.

THE MAINTENANCE OF THE PHYSICIAN'S CAR

TO THE physician who is not a natural born mechanical engineer the selection of a car to meet his requirements is a problem that is becoming more difficult every year. A score or so of years ago, when there was but one make, a choice was easy. When the inexperienced falls into the clutches of a voluble salesman, or a dozen of them, which way is the disciple of Esculapius going to turn? It goes without saying

that one situated as I am, with the bulk of practice among farmers, the strains to which a car will be subjected are very different from one that is to be used on asphalt or macadam pavements. This article is written from the standpoint of the country doctor, and on the supposition that the auto is a financial investment, one expected to bring in some returns, and not a mere luxury to be used for pleasure and recreation.

I have a splendid horse; I feel that it is essential that a country doctor should have at least one good horse, as at certain seasons of the year the snow and mud render an ordinary auto, with moderate power, worse than useless. I bought a car (149) last September and have run it over 800 miles. A brother physician in a neighboring town has used a runabout of this make (but different model) for two years with practically no outlay for repairs, except tires, and that looked like a very good recommendation. My car is so light that I can lift any wheel by the hub. The springs are excellent, and, therefore, the wear on the tires is reduced to a minimum. This last point is a very important one when rough and stony roads are a factor. I have but one criticism to make against this little runabout and that is, it has but two forward gears. For best results a car should have at least three forward gears, high, intermediate and low. Heavy mud and long low hills are too much for high gear and the low (which will climb anything that can be climbed) is too slow.

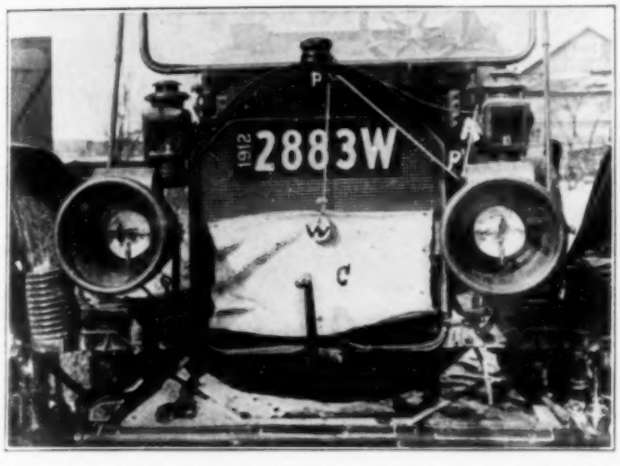


Fig. 25.—Adjustable radiator curtain devised by Dr. A. E. Midgley, Lima Center, Wis., for his automobile (149) in cold weather. C, Curtain drawn half way. W, Weight to lower the curtain when the cord is released. P, Pulleys over which runs the cord A to the dashboard. E, Below the radiator, exhaust tube from the radiator.

DO YOUR OWN REPAIRS

The engine, although a single cylinder, runs smoothly and with almost no perceptible vibration, and when the roads are in good condition takes me along at a speed up to 25 miles an hour, which is fast enough for country driving. The piston and valves are easily removed for cleaning or grinding. I have made a small tool so I can do my own grinding. The nearest repair shop is 6 miles distant, but as I have a good set of tools, I have been able to do the little adjusting and alteration that has been desirable, if not altogether necessary.

ADJUSTABLE RADIATOR CURTAIN

I do not use an anti-freeze mixture. When the engine is cold and the temperature around zero, filling the radiator with hot water and warming the carbureter enables one to start the engine easily. Covering the radiator with a robe while making a call keeps the water warm. The engine yields the most power when the water is boiling. To prevent undue cooling in cold weather I have arranged an adjustable curtain that is operated by a cord from the driving seat. A tube extending from the radiator vent to the side of the car in front enables one to see when the water is hot by the escaping steam, and to adjust the curtain accordingly without stopping and getting out. By slacking the cord, the curtain is pulled down by a weight consisting of a 1-ounce ointment box filled with melted lead. The curtain slides on two vertical wires, held thereto by small rings made from bell wire.

HOME-MADE HEATER FOR GENERATOR

I tried a mixture of wood alcohol and water as an anti-freeze mixture in my generator (being still antiquated enough to use a generator), and the light was miserable, and frequently when a bump was encountered would go out. I cut up two tomato cans and made a small box with one concave surface to fit the convexity of the generator water compartment. The pieces were riveted, not soldered. The box is attached to the tank by wire hoops, after both box and tank are enclosed in asbestos. A small piece of carriage heater coal will keep the water warm on the coldest night, the colder the weather, the larger the piece of coal. The temperature can also be regulated by inserting a strip of asbestos between the coal and the inside surface of the box. Empty the tank when through for the night and blow out condensed moisture

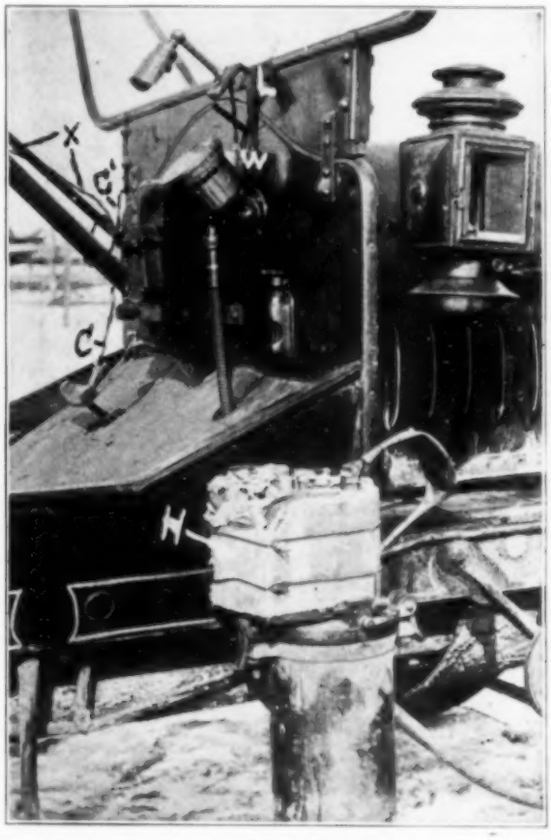


Fig. 26.—View of the dashboard as arranged on his car by Dr. A. E. Midgley, Lima Center, Wis. C, Cord for adjusting the radiator curtain. H, Generator heater. L, Shock-absorbing lamp bracket. W, Watch and speedometer. X, Silk lamp cord from push button on steering wheel to battery and lamp.

from gas tubing and burners, to avoid any water that might have collected from obstructing the tubing by freezing. Some makes of this coal can be ignited over a small alcohol lamp carried in the tool box. I have made a large roomy locker and bolted it to rear of auto. Water can be carried in a vacuum bottle or obtained at a farm house if one is overtaken by darkness on the road, or even drawn from the radiator.

HOME-MADE DASH LAMP

At the side of the speedometer I have a small box containing cotton waste and holding a dollar watch. Over these is hung a dash lamp bracket with a 2 c.p. tungsten lamp operated from the dry cells. A push button with an extra long plunger (so it can be operated by the gloved hand) is mounted on the steering wheel within convenient reach of the thumb. When one desires to make a reading, the button is pressed.

all. No need of striking matches. The current consumption is extremely small. If your ignition is operated by dry cells, use two sets and connect the extra set to the magneto post of the coil. Alternate sides daily. Connect lamp to one of the sets, but use the other set for ignition at night. This arrangement will not interfere with ignition, and your motor will never "go dead" on the road from the batteries giving out. When one set shows signs of weakness, replace it.

THE TOOLS ONE NEEDS

The extent of the repairs one is able to make will depend on one's ability as a mechanic, his outfit of tools and his inclination to work. To the inexperienced I would suggest the following tools, same to be acquired as you progress in the useful art of using the hands. A good automatic tire vulcanizer. When the casing is gashed, mend it. Don't wait for a blow-out. Blow-outs are expensive and sometimes disastrous. Avoid them. A breast drill with two chucks, and set of drills. Screw plates, ⅛ inch to ¼ inch machine thread, and ¼ inch to ½ inch A. L. A. M. thread. Gasoline torch with hook to hold soldering iron. Soldering outfit. A full set of wrenches including an 18-inch monkey wrench and a 10 or 12-inch Stillson wrench. A strong bench vise. Tinner's shears, hack saw, voltammeter, cold chisel, hammers, screw drivers, files, pliers, etc.

WARM THE AIR FOR CARBURETER

For cold weather it is desirable to have an air tube from the exhaust pipe to the carbureter intake, else the gasoline will not vaporize properly. The cylinder oil and the transmission and differential grease should be selected carefully. Some of these products now on the market become so hard at temperatures around 15 degrees above, that cranking the engine becomes almost an impossibility, owing to the binding of the transmission. If you are so unfortunate as to have that kind of grease, try softening it with kerosene, or better, get the "zero" kind.

GRAVEL FLOORED GARAGE

The floor of my garage is gravel, except the runways, which are made of cement and about 30 inches wide. Drippings from the transmission fall on the gravel, which can be shoveled out from time to time and replaced. A greasy, oil-soaked floor is detrimental to the tires.

My car will run from 20 to 25 miles on one gallon of gasoline, when the roads are in good condition. The running expense is very low. The depreciation on a car costing $1,000 or more will almost pay for a car like mine the first year.

As to the practicability of the auto in very cold weather, zero or lower, it will depend a good deal on the car. With some the carbureter will not work satisfactorily unless heated. When one is called on to make a hurry call within a couple of miles he will often save time by hitching up the old reliable horse, for a gasoline engine will sometimes positively refuse to run when cold. The starting can be expedited by filling the radiator with hot water, by warming the carbureter, and by using the hot air intake as already mentioned.

For country work when there is considerable snow, the low-priced auto is impracticable. The furrows made by cutters and bob-sleds are several inches narrower than the auto tread, thus bringing one side out into the deep snow.

Dry batteries that show signs of giving out may still be used by employing the following arrangement: Arrange two, three or more cells in "parallel" until the desired amperage is obtained, and connect a sufficient number of such units in "series" to give the desired voltage. They will work well for weeks. If you have never tried it there is a pleasant surprise in store for you.

During dry weather the eddies around the wind shield draw in a fine impalpable dust that I should think would be highly detrimental to one afflicted with pulmonary disease. I have never seen this mentioned.

A. E. MIDGLEY, M.D., Lima Center, Wis.

It's a poor engine that won't work both ways.

SELF-STARTERS

NEVER before in the history of the motor car has so much attention been given to the refinements for safety and convenience, both by the manufacturer and purchaser. The self-starter is probably the greatest of these refinements. Most of us know, by experience, how exasperating it is to be compelled to wade in the mud and rain, and crank a cold car, until "patience ceases to be a virtue," and patients have sought other medical assistance. The self-starter eliminates this, and also prevents the stalling of the engine, in the congested traffic-ways of our cities. Too, the self-starter is effectual preventive treatment for fractures of the forearm, which have become frequent. It has done more than any other device to make the gas car practical for ladies' use. [Illustration near the end of the automobile section.]

There are three classes of self-starters: the compressed air type, the gas type, and the electric. In the air type, the air is compressed by the engine of the car; and when the car is to be cranked, the compressed air is turned into the cylinders, causing the engine to assume the natural motion. Two great disadvantages of this variety are that the compressed air tank, pump and pipes are very liable to leakage; and that when the highly compressed air is liberated, with the gas vapor, in the combustion chambers, the mixture is greatly thinned, making starting difficult and uncertain.

In the gas type, a small charge of the acetylene gas used for the lamps is turned into the combustion chambers of the cylinders, and ignited by a spark from the ignition system, thus starting the engine. The greatest disadvantages of this type are that it is expensive and uncertain, owing to the use of so much gas, and the lack of constant supply; and that it is dangerous, for a thin mixture of air and acetylene gas is highly explosive.

The electric self-starter is by far the most practical, because it combines a good imitation of continuous hand-cranking, with a constant source of current for lighting, and highly efficient ignition. There are several kinds of electric self-starters, but they all have for their foundation the use of combined motor-generator, storage cells, and necessary devices of control. The current is turned from the storage battery into the motor, causing it to turn the engine of the car over; and after the engine is started, the same motor is driven as a generator, which affords a constant and efficient source of electric current. After years of automobile experience, the electric self-starter impresses me as the most efficient, reliable and inexpensive of all; I am using one which was invented by my son.

DORA GREENE-WILSON, M.D., Kansas City, Mo.

THE ACCESSORIES THE THINGS THAT COUNT

THE accessories are what make for comfort and ease of operation. First is the gasoline strainer, located in some accessible place on the pipe line, preferably near the carbureter. This, if occasionally drained, will prevent clogging of the carbureter with consequent delay on the road.

POWER TIRE PUMP AND JACK

The second most important item is a power tire pump. Air bottles, carbonic gas, ready inflated demountable tires, and such are very well in their place, but a tire pump operated by the engine is always ready when you need it. These tire pumps are of many varieties, some of them are very complicated. A simple and durable one (189) can be connected with a pressure gauge located on the dash and always in view. If one has a power air pump then the next useful accessory is the pneumatic-jack, which will raise the car in case of necessity without the back breaking work of the hand-operated jack.

I have found tires that are blown out on the side valuable when used in the following manner: Carefully cut the bead off from both sides; take a new tire of the same size and place it in the old casing; then put it on the wheel in the usual manner. The tire put on with care in this way will easily run from 10,000 to 15,000 miles unless punctured by some very sharp and long nail. If, however, the old casing

is put on with the new casing already on the wheel, no such mileage can be attained, because the fabric of the new casing is invariably broken in the putting-on process.

ELECTRIC LIGHTS THE BEST

Lights are of vast importance and nothing can compare with electric lights. Those who have means of applying the dynamo system can secure abundant satisfaction from a cheap and substantial product (190). Those who cannot connect with the dynamo system can get current for their lamps from a storage battery, 100 ampere-hour being an abundance. Battery can be charged once or twice a week with an alternating current rectifier (191).

The same socket in the back of the car (which is connected to the storage battery and through which it is charged by a plug from a rectifier) will serve as a connection for a trouble lamp. This trouble lamp with about twenty feet of cord is a mighty handy thing when in trouble on the road at night. Switches for the various lamps are not yet made perfect. They are too easily broken and too difficult to repair.

Fig. 27.—Pulling an automobile up the steep bank of a washout by block and tackle. According to *Popular Mechanics*, through whose courtesy we use the picture, a Californian, whose business keeps him traveling by motor car over all kinds of roads and in every kind of weather, has equipped his car with a block-and-tackle outfit for emergency service. The accessories of the block and tackle are an iron stake, the necessary rope cable and two capstan drums, the latter being fitted to the hubs of the rear wheels. In case the car becomes bogged in a mud hole or sticks in the heavy sand of a washout, he is not at the mercy of a chance farmer with a team of mules, but simply drives the iron stake some distance ahead of the car, adjusts the block and tackle, takes a turn of his cable around one of the capstan drums, starts the engine and pulls himself out with ease. An interesting feature of the outfit is the removal of the rear seat and the substitution of a box for the storage of the block and tackle, containing 500 feet of rope, tools and a camp outfit for use through unsettled districts.

SELF-STARTERS

A matter of great importance to a doctor who drives his own car is a self-starter. Getting out in the mud from ten to twenty times in the morning, even when the weather is nice, is a rather strenuous proposition; besides there is the danger of broken wrists and shins. The trouble with compressed air or gas starters is that occasionally the engine stops on the dead-center, when no amount of pressure will turn her over; and it seems that this is apt to happen with the car stalled in a mud hole or on a railway crossing. An additional drawback to this style of starter is the difficulty of keeping the tanks and pipe lines tight, and the necessity for perfect compression in the cylinders, with frequent regrinding of valves. Some compressed gas starters (192) are not open to this last objection, but they frequently fail through improper mixture.

The best electric starter (193) is almost perfection; for it will start the motor from any position of the pistons, and will repeat the operation many times in case the motor fails to go at once. Besides, this outfit obviates the necessity of oil or gas lamps and the owner is independent of any charging station. Of the spring starters I have only had experience with one (194). This company will perhaps, some day, put out a good starter; but I do not think much of its present product. Breakages are common and the company charges for repairs, even when the starter is at fault.

RADIATOR FOR WINTER

A very nice accessory for any car is a radiator made like a water back of three or four lengths of ½-inch pipe and connected through a globe valve directly with the exhaust manifold. This radiator being of iron is not easily damaged, and can lie on the floor under the legs of the passengers. If the globe valve is on the inside of the car, the heat can be regulated to a nicety or shut off at a moment's notice.

WINDLASS HANDY WHEN STUCK

Country doctors who go over the bad roads need an additional contrivance which will some day be built in all cars. I refer to a windlass on which is coiled about 100 feet of small wire cable. The windlass should be built into the frame and thrown into gear with the transmission by a special shift. The cable should be threaded through the front part of the frame and be terminated by a stout hook; in case of being hopelessly stalled in mud, snow, or sand or down an embankment a car having one of these outfits need ask help of no one.

H. N. Cross, M.D., Stockton, Cal.

REPAIRING DONE AT HOME

SINCE 1902, beginning with a little curb-dash car (112), I have owned nineteen different makes, some good and some not much good. The car (113) shown on page 1071, D, ran 28,000 miles and at last burned up on the road. My present runabout (114) I like very well as far as the car itself is concerned, my complaint being on the prices charged for parts and for repair work. I wish to emphasize the necessity of the owners being repairmen as well as physicians; the trouble with us is that we go to the repairmen with all little defects.

The following may serve as an illustration of my experiences leading to this view of the situation. I had a defective steering-gear which I took to Indianapolis for repair. The parts cost $17 and labor $24.62. After paying these amounts I drove the car for five blocks, when I had to return it to another garage to have all the work done over again, costing $11.05 more before I could get the car home. I demanded from the first-mentioned people the return of this amount, which was not done. Being tired of this skin game, I put on an old suit, got out the tools I had and went to work. I took the motor and steering-gear down, and repaired in one day a defect on which I had foolishly spent $52.62! A professional friend, who has a car of the same make, asked me one day to examine his car, which he could not start; he had been told by the repairmen that the motor had to be taken down, being full of carbon. I found that there was a little water on the connecting wire on the spark plug, and I took a small piece of waste, wiped off the points and started the motor. Of course, the repairmen did not quite like this simple solution of the problem. Let us get the old suits down and get to repairing our own cars! I could not do without my motor car, but I realize that I must do my own repairing. As to tires, the pneumatic is surely not the tire for the medical profession; I have used a substitute (115) and like it very much.

Charles W. Pagel, M.D., Greensburg, Ind.

EXACT CALCULATIONS

BEING no longer an experiment with the physician, the automobile offers a problem to be studied from an economic standpoint. Few undertake to study the actual cost of a machine which is necessary to an economic conclusion. The moderate-priced car is perhaps more economical and the economical machine is one that will give greater satisfaction.

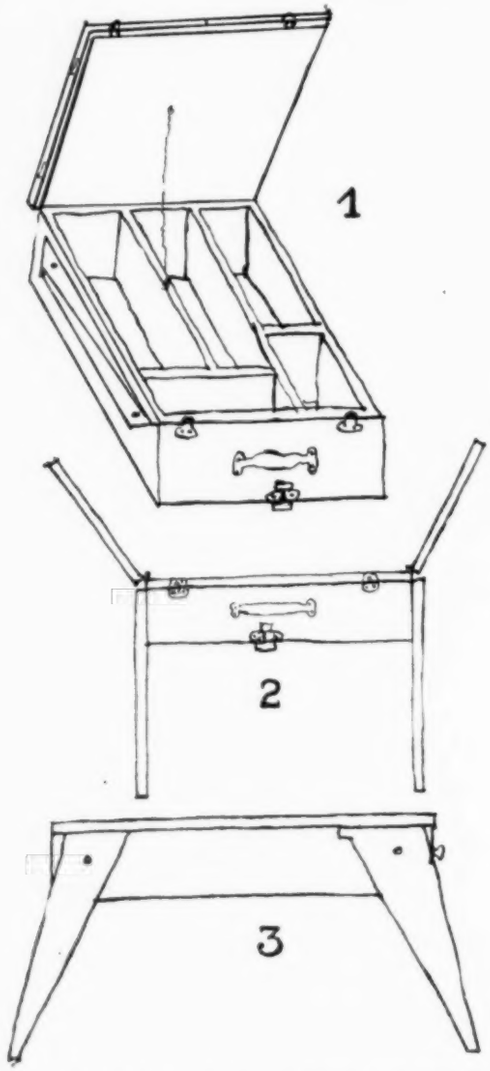


Fig. 28.—1. Lunch box and vacuum bottle case with a folding attachment to the lid which can be transformed into a table, devised by Dr. R. M. Harbin, Rome, Ga. All of this has the appearance of one box and can be fastened to the running-board with spring catches that are used for fastening windows. 2. End view, showing the table unfolded from the lid. 3. Side view, showing legs in position.

When the repair bill goes up harrowing experiences have happened. Any one who cares to investigate the cost of a car will find that the following calculations are approximately correct, with good luck. The calculated cost of the manufacturers is a snare and a delusion.

	$3,000 CAR LASTING 6 YRS., 40,000 MILEAGE.	$1,200 CAR LASTING 4 YRS., 30,000 MILEAGE.
Depreciation per year.....	$500	$300
Interest 6 per cent. per year...	180	72
Two sets 4-inch tires per year.	320	184
Gasoline, oil, repairs, etc.....	200	200
	$1,200	$756
Cost per month.....	$100	$63

When the cost of a chauffeur is added, an additional expense of maintenance should be added. It is not necessary for the physician to do any repairs, but it is economically necessary for him to go to the garage with the diagnosis made of repairs needed, and if he fails to understand his machine he will have the bill to pay. I have run a roadster (152) 20,000 miles and it is still giving satisfaction, but I have a new three-passenger car (153) as a reserve car. I have found it satisfactory never to house a car at home for the night unless it is good for 100 miles. I have a clean, comfortable garage with good lights and spend an hour twice a week in the late evenings for miscellaneous inspection. The one who has not time for this will spend more time than that on the highways. To those who have to make cross country trips for consultations I would suggest a box for vacuum bottles, fastened to the running-board with window fasteners (see illustration). That will give the physician an opportunity to enjoy outings with his family.

R. M. HARBIN, M.D., Rome, Ga.

THE AUTOMOBILE AN INVESTMENT

FROM the time I bought my car (140) in the fall of 1910 until I exchanged it for another one a year later, covering 7,000 miles in this interval, I did not lose a day's service. When I turned in my 1911 model in Boston, I stepped into a 1912 car and this has, so far, given me as good service. No road has been too bad or snow storm too deep to interfere with my work. Aside from depreciation of car, it has cost me 8 cents a mile to run it. This includes every expense, even automobile clothing and various experiments I tried in the shape of bumpers, treads, etc., in fact everything that I could possibly charge to the car. This is about one-half of what my horse equipment used to cost me. In addition to this saving in expense, the automobile has given me quicker service, a larger range, and a saving of 50 per cent. in time.

STUNG

I have experimented with various devices, many of which were unsatisfactory; for instance, I bought a set of treads and the only advantage they have is that they prevent punctures. They are more expensive to run than the ordinary shoes and only prevent skidding when new. I also bought two signaling devices; one of these was an electric horn which could not be heard across the street and was labeled by my friends as the "big horn with the little noise." Another was a whistling device which I found out, after I had paid for and received it, would cost about three times its price to install on the car; so I have settled down to the regular automobile bulb horn as being the best signaling device.

Last winter I kept my car in a garage where there was no heat of any kind and it generally started on the third turnover of the crank, which speaks well for the engine and its fuel and oiling system. Of course there have been minor troubles which are common to any automobile but none of these was serious enough to delay me more than a short time and most of them I could overcome myself. For these 7,000 miles I have used up exactly 14 gallons of cylinder oil; for this distance I had five tires and with some patching they would have been good for some 2,000 miles more. On my 1912 car I am using non-skid tires (141), which I think are superior to any I have run across. The car has just the right horse-power to give economy of wear; more than this horse-power (32) means more vibration. It is a very easy riding car and needs no shock absorbers. Aside from washing, tightening up nuts occasionally and the like, all I have to do to it is to put in gasoline and oil. I find it better to add a pint or so of cylinder oil at a time rather than to put in a large quantity. The carbureter (142) is certainly not a cold weather carbureter; however, it gives good service by the use of an adjustable curtain in front of the radiator.

I use a runabout type which gives ample carrying space in the rear. I would prefer a left-hand drive, to which about all the cars will come in time. With fore-door body and the wind-shield one can be very comfortable even in the most extreme weather; and by adjusting the planes of the wind-shield in the summer, the car can be kept cool. The fore-door also keeps out a lot of dust. In these days of traffic

regulations a reliable speedometer (143) is necessary. The braking system of the car is particularly good and good brakes are an absolute requirement, especially for a physician. The demountable rims are also a very necessary luxury. On the whole, an automobile should be looked on as an investment giving the best return for the money.

ATTENTION TO LITTLE POINTS ADDS COMFORT

Foot-warmers have not been needed at all; and owing to the fore-doors and wind-shield I use less covering for my hands than when I drove a horse. The wear on tires is less with a moderate speed; and filling every little cut in the tires saves a lot. I look over my tires every night and fill all cuts, letting them stand over night to harden. My garage has a cement floor with cement blocks for sills; the upper part is made in parts so it can be taken down and easily transported. Under the shingles I have tarred paper.

TOO LITTLE EXERCISE

There is one serious objection to the use of the automobile. It makes one lazy, and much less walking is done. A physician has little enough exercise anyway, and I find that I am inclined to take less since I have run an auto. My garage is back of my residence, and I have a switch in the house so as to light the garage before leaving the house. An electric lamp or an electric flat-iron placed under the hood keeps the water from freezing and the engine warm. Denatured alcohol should of course be used in the radiator. To show how little trouble my car is, I wore a white flannel suit almost all last summer. There are not many cars with which this would be possible.

A. F. WHEAT, M.D., Manchester, N. H.

EMPLOY CHAUFFEUR AND ECONOMIZE ENERGY

A LONG while ago, when I used horses, I found it profitable to have some one to drive for me as soon as I could afford to pay the necessary wages; and yet I had driven horses from the time I was a little boy and could drive them "automatically" if I could do anything automatically. But, automatic effort is still effort, and uses strength, even though it does not call on the same brain functions that are used in the sick room and the consulting room. With this idea I have often urged some men to stop driving their own cars and employ chauffeurs, because the economy in effort would be profitable—more strength could be put into more remunerative work, and a larger volume of remunerative work could be done.

DRIVE AUTO?—STOP WRITING PAPERS

I well remember one man saying that when he began to drive an automobile he stopped writing papers, and I understood that to mean that he stopped productive thinking and did only the absolutely necessary thinking to enable him to prescribe or operate. I think President Jordan is credited with saying that one should never do any of these things that one can hire someone else to do, and I am sure that is sound advice.

I know that we cannot all have chauffeurs, for I have walked many miles to save car fares, but those of us who are industrious and earnest are sure to come to the time when the chauffeur question will come up, and to such a man I would say "get a chauffeur," for, if an "automatically" driven automobile can save more time, by doing more, than the horse, the chauffeur-driven automobile will save more yet—and will leave a good margin of strength for efforts of a higher type than any form of automatism.

A CHAUFFEUR'S PRACTICAL ADVICE

And now my chauffeur, W. W. Earle, who has driven my cars for me for nearly four years, gives me these practical points from the standpoint of the physician's chauffeur—that is, from the standpoint of an automobile man who knows from experience about a physician's needs in driving.

"For a business car, do not have any more weight than is necessary, for it will have to be paid for in gasoline and tires. For a light car, a 25 horse-power, long-stroke motor is sufficient, but be sure to have more power than is really needed.

"A self-starter, demountable rims, anti-skid rear tires, electric headlights operated by dynamo or magneto and battery, electric and oil side- and tail-lights should be included.

"Be sure that the steering knuckles are not below the front axle. See that the seats are comfortable, with plenty of leg room. After demonstration on hills see that the engine is not overheated and that there is no oil leakage from the end of the crank shaft or transmission.

"The carbureter, transmission, clutch, valves and pump should be easy of access, in fact all parts should be accessible, but these in particular. An air adjustment for the carbureter should be located on the dash. The clutch should be easily removed without disturbing the transmission.

"The car should be shaft-driven with full floating rear axles and torsion rod. The brakes should be double, on rear wheels, with good surface and lined with material which will not burn; they should also be easily adjusted. The valves in the motor should be of generous diameter with good lift and pitch. All wires should be well protected. The tires should be oversize. The motor should be able to pull slowly on high gear, and pick up readily; this is very important in city work."

My car (104) has climbed the Sierra Nevadas a couple of times, has done some hard and rough work up about Lake Tahoe, has been up Mount Hamilton, at the Lick Observatory, has made the Guerneville grade on the trip to the Bohemian Grove, and done all the things that we asked of it readily.

HARRY M. SHERMAN, M.D., San Francisco.

SOMETHING FOR THE DOCTOR'S WIFE—AN AUTOMOBILE GAME

A correspondent sends the following outline for a game such as might be enjoyed at an afternoon tea or to amuse friends in the evening. Our correspondent used it at a St. Patrick's day luncheon, March 18, introducing it with the following original explanation:

> Were Saint Patrick here to-day,
> He'd need an auto right away.
> Fill out the list with Makes you find,
> And he can choose his favorite kind.

It is usable, of course, at any time with merely an oral introduction or with some other verse appropriate to the occasion. Each item represents the name of an automobile, which the participants are invited to guess and write down.

1. A river in New York.
2. One of Scott's novels.
3. The discoverer of electricity.
4. A planet.
5. A famous pitcher of the New York Giants.
6. A pioneer western trail.
7. Discovered a continent.
8. One of our presidents.
9. One of the tri-cities on the Mississippi.
10. A sleeping-car corporation.
11. Theater in which Lincoln was shot.
12. First battle of the revolutionary war.
13. An occupation.
14. One addicted to strolling.
15. An instrument for removing dust.
16. A cabinet officer.
17. An African explorer.
18. One of the Apostles.
19. A president and an Indian implement of war.
20. Something we burn.
21. Where Nature looks her best in fall.
22. A well-known sewing machine.
23. Business between states.
24. An old Chicago hotel and a vocalist.
25. What the people of the United States call themselves.
26. Pertaining to the government.
27. Head office in British cabinet.
28. Incomparable.
29. A fort in Florida.
30. Fast and thorough.

THE VALUE OF GOOD ROADS

GOOD ROADS A PANACEA FOR AUTOMOBILE TROUBLES

THE late Zebulon Baird Vance was the war governor of North Carolina in the Confederate States of America. In consequence of this he incurred certain political disabilities, precluding him from subsequently holding office under the United States Government, pending the removal of his said disabilities. Being elected to the United States Senate from his native state, North Carolina, he proceeded to Washington to claim his seat. This was denied him, on account of his unremoved political disabilities. Returning home by rail from his unsuccessful effort to gain his seat in the Senate, there were in the seat behind him two ministers engaged in a heated argument on the, then and now, much debated question of "calling and election." The ministers appealed to Vance for a decision on their respective arguments. Vance

Fig. 29.—View of the residence and automobile (200) of Dr. Carl V. Reynolds, Asheville, N. C.

replied, "Gentlemen, you may be called and you may be elected, but it ain't worth a —— to you, if you don't get your disabilities removed."

So it is with automobiles. You may have a good machine; you may properly care for it; you, or your chauffeur, may be a good driver, but "it ain't worth a —— to you" beyond the limits of good roads. Therefore every physician is not so much concerned with machines, or machine devices, in all of which a marked degree of efficiency has been attained, as he is in the promotion of good roads. A bad road is the only thing really limiting the usefulness of a good modern machine. Who is not paying an excessive "mud tax"? All should be interested in a movement which discloses the false economy of bad roads. If civic pride does not appeal, it behooves the physician, from a monetary standpoint, to get out of the rut by using his undisputed influence for better roads—hard surfaced roads—well maintained roads. Remember, "he who lets his country die, lets all things die, and all things dying, curse him."

C. V. Reynolds, M.D., Asheville, N. C.

THE HILL PROBLEM

THE accompanying illustration of our home shows the garage cut into the hill on which the house stands, an attractive possibility for high building-lots. Both face the street and the lawn and garden between are level with the roof of the garage. The material is cement and plaster, which are very generally used here. In front are the roadster (119) and my wife's electric (120). The steep grades in this locality makes the automobile problem to a large extent one of climbing power and it has taken us a little time and some adverse experience to find out just what is needed for such a situation. There may be a suggestion in this for some one else in the same kind of country. Our first experiment was a two-cycle five-passenger touring car (121) which I had seen demonstrated to my satisfaction in the East as a dependable, easy running, powerful car for general use.

But my work here makes a different demand on an engine and I soon found myself in difficulties that it took a little time to solve. My usual program takes me each morning about three blocks down hill to the hospital where I am occupied until nearly noon, leaving the car standing outside. Then I coast down town a few blocks more to my office for a consultation hour; then back up hill to lunch. Then the afternoon, occupied partly in driving and partly by a longer period in the office, gives the machine its real day's work. The first two runs, being down hill, can be made almost without starting the engine and it is only when turning back up hill that pulling power is demanded to any great extent. In these short down-hill runs the two-cycle car gave trou-

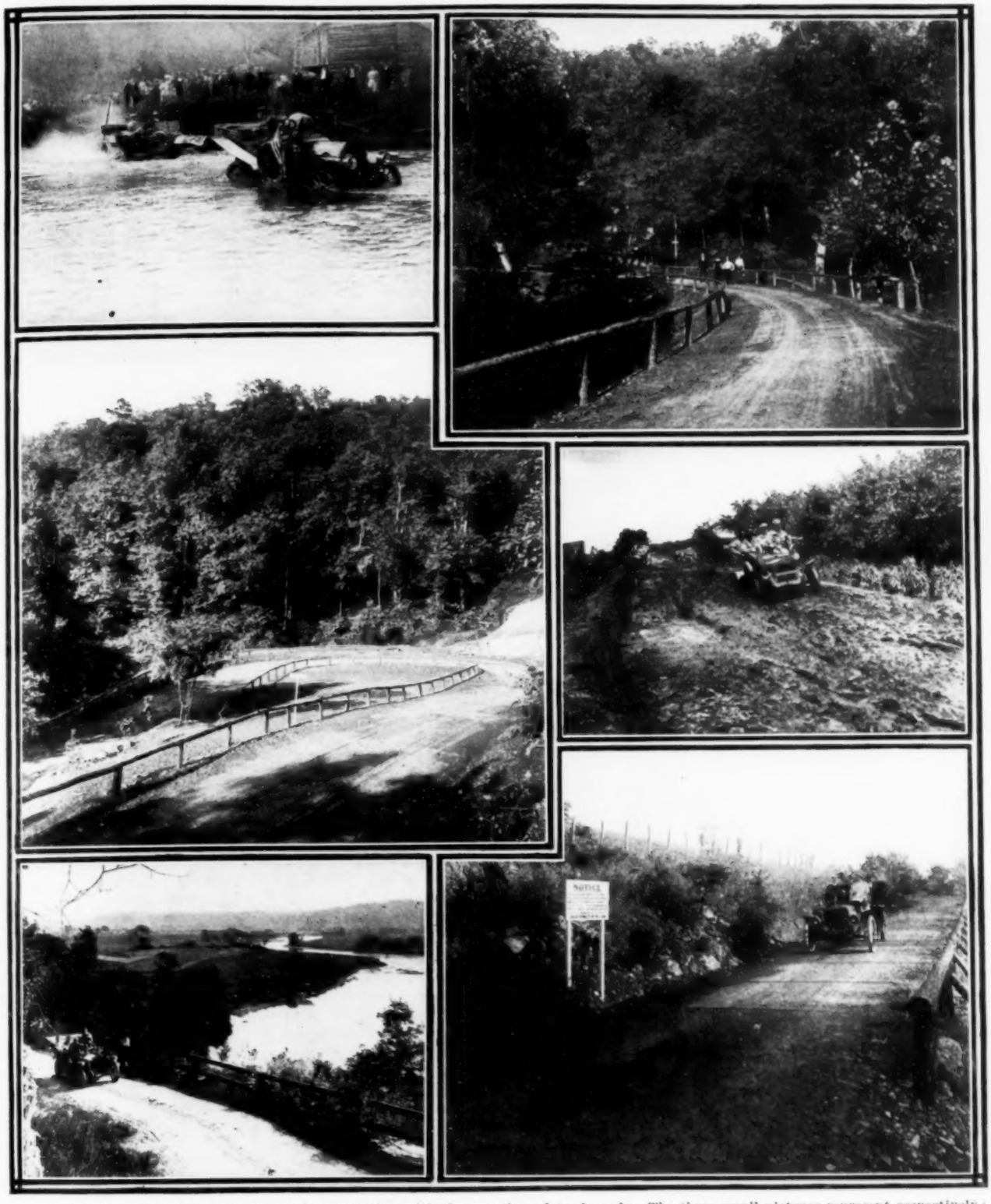
Fig. 30.—House, garage and automobiles (119, 120, 121) of Dr. and Mrs. H. P. Newman, San Diego, Cal.

ble and we at last learned that this type is best adapted for long and heavy runs in the country or on level roads in the city. Short runs and frequent stops do not give the engine a chance to warm up and get into smooth action.

Now we reserve the touring car for work to which it is adapted and it gives perfect satisfaction with the exception of taking more gasoline than some other makes. I use the roadster for town work and it runs on an amazingly small amount of gas. The electric is of a type which is coming into general use; it is light and strong and takes the hills without trouble, the principal objections to electrics in any country of great distances are the impossibility of recharging in remoter districts and, with the lighter of the vehicles, the impossibility of heavy pulling or loading. They are the thing for town and level roads, however, for ladies' driving and lighter use.

H. P. Newman, M.D., San Diego, Cal.

Oil up an engine in the way it should be done and in its old age it will not go back on you.



Figs. 31-36.—Some views of interest in connection with the question of good roads. The three small pictures represent respectively: Crossing the ford, Illinois mud, and a beautiful view in the Berkshires. The ford picture is a scene from the Glidden tour, the annual tour of the American Automobile Association, October, 1911. This stream was swollen following a tremendous rainfall in the Virginia mountains. This spot is on the national highway referred to in Dr. Yost's article on a later page. No cars except the very light ones went through on their own power. These three pictures were furnished by Dr. David E. Hoag, New York City, surgeon of the American Automobile Association.

The three larger views, sent by Dr. C. V. Reynolds, Asheville, N. C., are of the Grove Park auto highway at Asheville, an exclusive road for motor cars which curves from the foothills to the summit of Sunset Mountain, an altitude of 3,119 feet, a distance of three miles, on an easy grade of 3 per cent. The road was opened to the public in the summer of 1911 and is proving to be a feature of considerable attraction to the motorists touring this Switzerland of America, as well as to the resident owners. Asheville boasts that it has the only two mountain roads exclusively for automobiles in the United States. The driveway traverses forest-covered lands that have been cleared as a park; the trees in the drive zone have been removed sufficiently for the wholesome action of sunlight and air on the roadway, and also afford the motorist full enjoyment of the vistas of magnificent scenery that are encompassed within the broad reaches of the Asheville plateau.

GOOD ROADS—THE KEYNOTE

BAD roads are not a new thing. Like the poor, they are always with us, and so far as history indicates, they have always been with us. Good roads also we have with us, miles and miles of them, and constantly that mileage is being increased at a rapidity never before dreamed of, thanks to that greatest of modern industries and achievements—the motor car. But we can still look back of the motor car, away back as it now seems, to the 80's and 90's, when the first real impetus to better roads blossomed forth—the bicycle.

In history, we have many a tale of noble highways built by the people of Carthage, and at a little later date, the 50,000 miles or more of Appian Ways, leading out in every direction from ancient Rome. On this side of the water, we have to go to South America to find the earliest and best roads. The roads of Peru stand to-day as among the wonders of the world. They lead over mountain tops and in many cases through the land of snows. One of these roads is 1,500 miles in length (similar to the distance from Boston to New Orleans) and 40 feet in width. Our Colonial ancestors had no adequate idea of the future development and demand of the highway. A strip of land without grass was a road, and in many instances, its course was cut out by the cattle. In 1876, the United States celebrated its hundredth birthday and also the birth of the wheel. It was not until men mounted on wheels, which they had to push, that the real condition of the roads was discovered. Out of the sorrows of the wheelmen came the birth of good roads. To that sturdy band of united workers, the League of American Wheelmen, we owe the initial steps that set the people thinking about roads. It gave the cause a start that nothing could restrain. Others have taken up the burden, all profiting by the start given to it by the wheelmen of the 80's.

Nowadays, thanks to the untiring energies of the various state and local automobile clubs, stimulated by that aggressive parent body, the American Automobile Association, the work is going bravely on. In many parts of the country the roads are built by counties, and in others the state itself finances the road building. The several annual organized automobile tours in many of the states have proved a great incentive to road building. That father of tours, the annual tour of the American Automobile Association, in competition for the Charles J. Glidden Trophy, sometimes known as the "American Automobile Derby," deserves the greatest credit of all. The laying out of the "Trail to Sunset" route from New York to San Francisco is one of the recent marvelous achievements. Our patriotism is touched and inspired by the establishment of the "National Highway" from New York to Jacksonville. Greatest of all the patriotic projects, however, is the Lincoln Memorial Highway, for which Congress has appropriated $2,000,000 to build. This national highway will extend from Washington to historic Gettysburg, over the very route traveled by the martyred president when he went to make his famous dedication speech.

We have good cars to-day aplenty. We even have the car-de-luxe, with its cut glass flower holder, its sewing bag, its vanity bag, its tea basket, with battery of vacuum bottles, its combination bridge and writing tables, clocks, thermometers, barometers, and what not. But the great question before the automobile user of to-day is not so much, "Is it safe and practical for me to buy and operate a car," nor is it a question how to build good roads, as it is to maintain what good roads we have already built, and where to get the financial aid for this purpose. The great crying demand to-day is for federal aid in the building and maintaining of roads.

The good roads movement has reached a stage where it cannot longer be ignored by the government. State and county roads are all very well in their way, but as any motorist of experience will state, there are so many instances where one state or county road ends, and there will follow a long stretch of bad road before the good ones commence again. It may not be a long stretch but it will be enough to divert travel from where it wants to and originally intended to go. I have noticed hundreds of instances of this in my trips over the country, as well as the absence of bridges over the small streams in many parts of the country, making it necessary to ford them, bad alike for car and occupants. Federal aid should come in, at least, to fill up the gaps. Congress can never resist united pressure for good roads appropriation. The commanding and influential position held by medical men in this country should be of great value. No special class uses the automobile more, both for daily use and touring. Members of the profession are found prominent in nearly all the important clubs. Their united efforts should be of value. Philadelphia has its Doctors Automobile Club, and the Doctors Automobile Association of America, first suggested by the author, has already assumed definite proportions.

DAVID EDWARD HOAG, M.D., New York City.

A SATISFACTORY EXPERIENCE

ON April 1, 1910, I purchased a 30 horse-power, five passenger car (186) at $1,650. After two or three lessons, I was able to drive on a broad country road where few obstacles were encountered without very grossly endangering the lives of the friends accompanying me, and after a week or two was able to drive through the busy streets without killing my engine more than one or twice in each block. Soon more practice and skill allowed me to induce some of my friends to drive to Pariaso Hot Springs, which trip includes the San Juan hill, one of the hardest mountains to cross in the whole valley. Return was made by way of Del Monte, around the bay of Monterey to Santa Cruz and over the Santa Cruz mountains back to San José. This trip includes some of the most trying roads, and yet some of the most beautiful scenery in California. It was all made without the slightest hitch or break of any sort. Much home driving and many trips of varying lengths were made during the entire summer and always was the car ready to go or stop without hesitation.

I had a puncture in September and a blow-out in December. In the latter case I put in a new inner tube that I had carried all the time and speedily learned a valuable lesson, for it promptly blew up and I found that it was not wise to have allowed it to rattle around unprotected under the back seat for five and a half months, as it was chafed and worn. I have since learned to wrap and protect well my extra inner tubes.

The two original front outer casings with their inner linings have run successfully without puncture or blow-out until they covered over 10,000 miles and were replaced by new outer casings. Thus, the outer casings, ordered discarded many months ago, were made to live again a natural life by the aid of the inner linings. They are great tire-savers.

At the present writing, Feb. 29, 1912, the speedometer stands at 11,265 miles; two tires are almost new, having run a little over 1,000 miles, and the other two with their inner linings will run about 5,000 miles more.

For twenty-three months of use, I consider one puncture and two blow-outs, one broken spring and a new cog for the low gear, a good record. Including purchase of new tires, up-keep of all sorts, gasoline and oil, and all other expenses it has averaged $23 a month, or 4½ cents a mile, and is in excellent condition for another 10,000 mile jaunt.

P. A. JORDAN, M.D., San José, Cal.

Use a Horse When Roads are Bad.—I keep a horse and buggy, but my touring car (180) takes the place of a second horse, and, so far, at less expense. I keep it at home and operate it myself. I use it in trips to the country; and for pleasure. With my family and friends we tour the surrounding country and visit neighboring towns; finding places of beauty and interest. Our roads and streets are such that a car cannot be used successfully after heavy rains and thaws, so I shall continue to keep a horse, especially during the winter season. But as a pleasure proposition, when roads and weather are good, it is the thing *par excellence*.—J. C. MATTHEWS, M.D., Springfield, Mo.

THE PHYSICIAN IN CROSS COUNTRY TRIPS

FROM INDIANA TO CAPE COD

"For my part, I travel not to go anywhere, but to go. I travel for travel's sake. The great affair is to move; to feel the needs and hitches of our life more nearly; to come down off this feather-bed of civilization and find the globe granite under foot and strewn with cutting flints. Alas, as we get up in life, and are more preoccupied with our affairs, even a holiday is a thing that must be worked for."—Robert Louis Stevenson.

AT sunrise July 10, 1911, our family of four left Muncie, Ind., on a motor trip eastward, my son at the wheel, I in charge of the route book, and my wife and daughter in the rear seat with log-book and supplies.

Our route took us through Lima, O., to Findlay, arriving at that place at 5 p. m. the first day, having covered 141 miles.

The second day we passed through Fostoria, Tiffin, Norwalk, Oberlin, Elyria, arriving in Cleveland 6 p. m.—129 miles.

The third day we passed through Mentor, Painesville, Ashtabula, Conneaut, O., Girard and Erie, Pa., arriving at Westfield, N. Y., 6:15 p. m.—132 miles.

The fourth day we passed through Fredonia, Buffalo, Batavia, Leroy, Avon, Lima, arriving at Canandaigua at 6:15 p. m.—150 miles.

The fifth day we traveled through Geneva, Seneca Falls, Cayuga, Auburn, Syracuse, Oneida, Utica, arriving at Herkimer 7:30 p. m.—145 miles.

The sixth day we traveled along the scenic and historic Mohawk Valley, passing through Little Falls, New York, St. Johnsville, Tribe's Hill and Albany, crossing into Massachusetts, 6 p. m., to Pittsfield—126 miles.

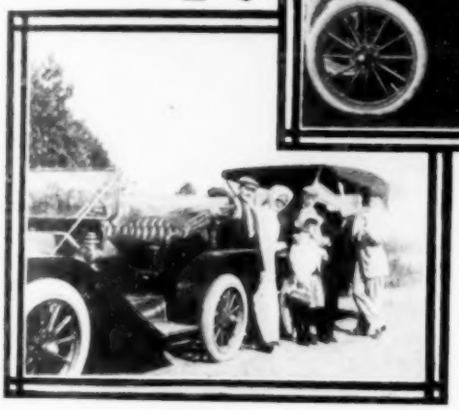


Fig. 37.—Automobiles and party of Dr. H. A. Cowing, Muncie, Ind., on his trip from Indiana to Cape Cod, as described in accompanying article; view taken at Cleveland.

Fig. 38.—A full car. Dr. W. C. Brittain, Cochranton, Pa., with his wife and two daughters and their children. Dr. Brittain drives the car (199) himself, usually taking some of the family along, and never fails to get there and back. He declares that this use of the automobile is better than any vacation he has had. He admits no cost for repairing and finds the running expense small.

The seventh day we passed through the Berkshires, and through Lenox, Lee, Chester, Westfield, Palmer and Warren, arriving at Worcester, Mass., at 5:45 p. m.—112 miles.

The eighth and last day of the trip we turned south and passed through Rhode Island, through Woonsocket, Pawtucket, Providence, then eastward again into Massachusetts, through Middleboro, Wareham out on Cape Cod, past Buzzard's Bay, arriving at the extreme elbow of the Cape at Chatham, our destination, 4:40 p. m.—136 miles.

The whole trip of 1,100 miles was made with practically no trouble with the car. The poorest roads we found in northwestern Ohio and Indiana. The best roads were in Massachusetts and New York. In these states the state highway commissions take charge of certain main roads, and these state roads are constructed and repaired according to modern road engineering plans. Drainage of the road is provided; large stone is put in the foundation, and on this crushed stone, and lastly a layer of sand and road tar. This is made solid and level with a road roller. There is no dust, and the surface is smooth, but usually not slippery. Even during heavy rains, water leaves the road immediately after it falls, and there is practically no mud.

The fertile grape country in the region of Westfield, N. Y., is full of interest. We drove for nearly a day with vineyards on either hand. From Syracuse to Herkimer, through Utica, we found almost perfect roads, through a beautiful country

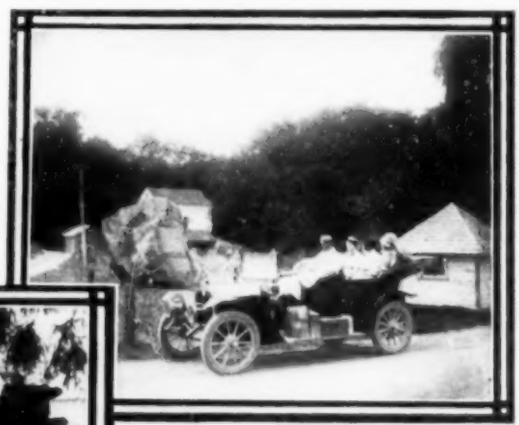


Fig. 39.—Dr. C. B. Longenecker, Philadelphia, on a trip through eastern Pennsylvania in his touring car (171). This view is at Gulph Mills, Montgomery County, Pa. At the left is shown a commemorative tablet to indicate the spot where the Continental Army encamped on its way to Valley Forge, a few miles beyond. Dr. Longenecker's article is on page 1069.

with green hills and fertile valleys. The last forty miles we made in two hours in company with an auto party from Fort Wayne, Ind., all stopping at Herkimer.

The following day we rode through the beautiful Berkshire Hills, and along the shore of Lake Queechy. Many times before we had seen the Berkshires from the train, but here was a new and better viewpoint. Roads were fine but at times steep with sharp turns. The next morning we passed Laurel Lake just out of Lenox, a beautiful suburb of Pittsfield. We rode through magnificent forests, and on the mountain at the top of Jacob's Ladder, 1,800 feet high, we stopped to rest, and add a stone to the cairn at the roadside. The spot was lonely and still, but some patriot who had preceded us had erected a lofty flag-pole and flung "Old Glory" to the breeze. At Chester, in the heart of the Berkshires, we stopped for breakfast. The weather was pleasant after the rain of the night before, and the mountain roads, following the mountain-streams, were ideal in construction; and at every turn we found the scenery very attractive.

On the last day of our trip, after leaving Worcester, our route lay along the Blackstone river. The landscape was typical of New England, rolling and hilly country; short crops enclosed in stone fences; woods of evergreens and deciduous trees. Leaving Providence, we soon caught sight of Buzzard's Bay, and the Cape Cod Canal now under construc-

tion, and the rest of our trip was easy. For forty miles eastward, we glided over Cape Cod's magnificent highway, the sea on either hand, the salt air in our faces, and our long journey ended, as we stopped at Chatham, at the Atlantic's edge, 1,100 miles from home. During our stay at Chatham, we visited Provincetown, 45 miles away, at the tip of the Cape, and saw the Atlantic Squadron, and the first landing-place of the Pilgrims. We also visited Plymouth, and made frequent trips to Hyannis.

At 7:35 a. m., August 14, we were off for the West. In the Berkshires, we had a real taste of a thunder storm in the mountains, but we escaped without serious discomfort. Leaving Pittsfield, we made a detour on account of construction work on the state road. The mountain road we followed was narrow and full of many sharp angles, but it opened up to our eyes many vistas of indescribable beauties. For twenty miles we saw no towns and only an occasional farm-house, but now and then a field of buckwheat, white in bloom, made sharp contrast to the dark background of the pine forest. Near Fredonia, N. Y., we saw Atwood flying eastward, on his trip from St. Louis to New York.

I had never been a motor enthusiast, and before starting I looked forward to the trip with only moderate interest, but made preparations for difficulties and dangers which never arose. After the first day or two out we all began to feel an exhilaration and an enjoyment that continued with us through the entire trip. It was a game full of wholesome excitement for all. We met with no accident, but avoided running at night. The entire trip of 2,200 miles consumed 153 gallons of gasoline. The total expense of the trip, so far as the automobile (179) was concerned, was $46.26, which included gasoline, garage and repairs, the latter item amounting to $2.90. The back tires used on the trip are still in use.

H. A. Cowing, M.D., Muncie, Ind.

THE RUNABOUT IN CROSS-COUNTRY TRIPS

FEELING the need of a vacation, I decided on an auto trip from St. Louis to the Allegheny Mountains at the point where they cradle the delightful summer resorts of Deer Park, Mount Lake Park, and Oakland, Md., at an altitude of almost 3,000 feet, with a temperature seldom exceeding 78 F. I therefore equipped my car (162) for a few weeks of outdoor life. I bolted a mess-box with supply of "grub" and all conveniences for cooking to the rear of the gas-tank, the tool-box on the right running-board, a three-gallon oil-can alongside of the generator on the left running-board, with shelter tent, canvas, sailors' hammock, blankets, mud-hooks, chains—in short, a complete camping-equipment distributed around and between the fenders and body of the car. In this way, independent of towns and hotels, I could stop wherever a likely-looking camping-place met my eye or took my fancy, and never had to make forced drives to reach certain places before night.

With my faithful bull terrier Royal, I left St. Louis, Aug. 10, 1911, returning September 27, and in all that time I slept inside a house only three nights. My appetite increased directly as the square of my distance from the sick-room and the city; I foraged at wayside farmhouses for milk, butter, eggs and roasting ears, and occasionally I cooked a bird or squirrel "acquired" with my six-shooter.

THE GLORY OF THE OUT-DOOR LIFE

If the night was fine I did not put up the tent but slung the hammock between convenient trees with only the starry sky for a roof and was lulled to sleep by the whisper of the wind and chirp of myriad insects. It was an unmixed joy to be awakened with the song of birds to taste the tang of the fresh morning air and to see the glorious dawn "budding like a rose in the East."

HEALTH RECUPERATION

With my faithful dog ever watchful beside me, I had no fear of tramps or thieves. In a day or two I developed the appetite of an ostrich and returned home with a gain in weight of 19 pounds and a gain in health of 40 per cent. The scenery is beautiful all the way and in places magnificent. In cutting adrift in this way from the old routine one feels as if reincarnated or at least rejuvenated when one's rest is undisturbed by the jangle of the office bell, the ring of the telephone and the smells and sounds of the sick-room.

A NATIONAL HIGHWAY

The route I took was the old Cumberland Road, now called the "National Road," from Cumberland, Md., to St. Louis. It is an ideal route, at least as to directness and scenery. In parts or on the whole, the road is excellent, but there are places almost impassable and one should not attempt to cross Illinois if it has rained within a week. In a few years I hope to see the Cumberland Road rebuilt, for it will make an ideal east-and-west cross-country highway and can be put in fine condition at comparatively little expense. It was the great artery of travel a half century ago. Over it traveled Benton, Clay, Calhoun and all the notables of sixty or more years ago between Washington and the West. The construction of the road was begun in 1825 by the government, and the masonry of the bridges and culverts is solid and substantial to-day. Some of the old stone taverns are still inhabited and look good for another hundred years; I saw one with the date 1835 on the "keystone" over the door. Maryland is building a splendid link of twenty miles of cement road, connecting the summer resort region to the famous old highway, to be completed in 1912.

THE COST OF RUNNING AN AUTO

I wish to express my admiration for the little car that carried me over 3,000 miles—some of it the toughest roads I have ever seen—without a miss or a mishap, excepting, of course, tire trouble. This latter was due to almost constant rains and the slippery roads, allowing the wheels to "spin" on the clay hills of West Virginia, cutting the treads of the rear wheels so badly that I was forced to replace them. Since my return, however, I have had them retreaded and they are good for from 2,000 to 3,000 miles about town. I am still using one of the original front cases and it looks good for at least 1,500 miles, while my total to date is 5,187 miles.

TWENTY-FOUR DOLLARS A MONTH

I purchased my present car (162) May 1, 1911, and in the ten months to date, March 1, 1912, total cost of up-keep, including all expenses of my summer trip that applied to the car, has been $240.13, or $24 a month, less than the keep of one horse and buggy, and I have saved at least one-half in time—besides the pleasure the family has had on country trips and drives in the parks on summer evenings. I would not go back to horses if they were furnished free, as I know that this car cannot be beaten for dependability or reliability. I have never been delayed except by punctures and I have had only one since last October, never being "towed in"; I use the car all winter in all kinds of weather, and with curtains all on I am as snug as in a coupé. During the ten months, the cost for gasoline (297½ gallons) has been $40.05, for oil (23 gallons at 35 cents), $8.05. In the total of $240 is included three new outer casings and three new inner tubes—in fact, the total represents every cent spent on the car in any manner. An auxiliary air-feed which I installed in the intake manifold has undoubtedly increased the efficiency of the engine remarkably, and allows frequent cleaning of the engine with coal oil in the most desirable manner.

There is no doubt of my car's greater efficiency and economy as against the horse as a motive power for business and for pleasure. If one wants to forget troubles one should get a car and spend the vacation on a cross-country trip.

Walter B. Yost, M.D., St. Louis.

Effect on Health.—I have used a machine for six years and cannot imagine how I ever got along without one. I consider an automobile—not merely from the business point of view, but more especially from that of health—the very best investment a physician can make. The effect on my health has been notably beneficial, and I doubt not many other physicians have found the same thing.—Charles L. Minor, M.D., Asheville, N. C.

WHAT KIND OF A CAR SHALL THE PHYSICIAN CHOOSE?

BACK TO THE SMALL CAR!

WITHIN the last few years the tendency among physicians has been toward larger cars; the time was when the small machine of the runabout type was considered ample for work and for some pleasure in addition. Whether our country brothers have been inoculated with the same virus I am unable to say, but the condition is pretty prevalent in this city. It is now rare to see a physician using a small car. I contracted the fever and added to my runabout (170) a touring-car (171, Fig. 39, page 1067), thinking I would shortly dispose of the smaller machine and do my work with the larger. This was about a year and a half ago. Since then I have deferred disposing of the small car, with the result that with the experience of two winters and one summer with two cars, certain definite comparisons can be made.

COMPARISON OF SMALL AND LARGE CAR

Cost.—Kept in a garage on my premises, the storage of the two cars costs no more than one. Probably the deterioration of tires is rather in excess, especially the inner tubes. Paint will deteriorate to an extent whether the car is used or not. To offset this, the knockabout car is ready in all weather and will more than save a coat of paint for the large car each season; as rain, mud, etc., are enemies to paint, the big car suffers less by being left under cover on stormy days; it does not matter about the knockabout car.

Maintenance. — The running expense, comparatively, is about as follows: oil, gasoline, tires, about 1½ to 2 cents a mile for the small car as against about 6 cents for the big car.

Looks.—The appearance of the large car is rather better than the small one, and is certainly preferred by the patient, as it lends an air of prosperity to the physician arriving in it. But as appearance does not always pay for the maintenance, it is economy to use the small car liberally; the mere fact that a physician has two cars is quite sufficient, even though the small car is used most of the time on the score of convenience.

Fig. 40.—Drs. Burrus and Duncan in front of High Point Hospital, High Point, N. C. Dr. J. T. Burrus on right by his car (224) and Dr. G. F. Duncan on left by his car (195).

Service.—The small car can be made ready in one-fourth the time necessary for the large one, and is more likely to be ready to respond to emergency service. During the colder months I seldom take out the large car; and indeed, it is a question whether the large car had not better be put out of commission entirely during the cold months, and used during pleasant weather and when a certain amount of touring is permissible; there is no doubt that a cheap, old, small car will save more than its selling value for the big car and decrease running expenses during the winter months.

Repairs.—Presumably, the small car was worth $150 two years ago and at present possibly $100, on a trade. During this time it has saved much more than this value to the large car, possibly $125 in running expenses and tires each winter, making in all, for the summer and two winters, probably (deducting depreciation and repairs) $225. During this time, the large car has avoided an indefinite repair bill, which at a minimum, would be no small sum.

CONCLUSIONS FAVOR THE SMALL CAR

On the whole, it seems to be a saving proposition to retain the old, small car. True, it is getting rather noisy and weather-beaten, and is always the recipient of my friends' jokes, but it seldom fails to get me back home!

When it is necessary to keep two cars in a public garage there would probably not be sufficient saving to justify the two cars, as the cost of storage would more than offset any saving in running expenses.

To make a comparison then, for the physician who can have but one car: if he has an income to justify the large car, he would probably receive an increased amount of enjoyment in the way of tours. But he must be prepared to assume the responsibility of a much larger sum for running expenses, up-keep and repairs. The small car is more likely to be ready, is cheaper as to first cost, running and other charges, and renders as much actual service for professional work as the large car and at a rate so much less that it is hardly necessary to make comparison. In my opinion, the physician has swung too far toward the large car.

C. B. LONGENECKER, M.D.
Philadelphia.

SMALL CAR VERSUS LARGE CAR

THIS experience began in 1906 with second-hand cars of the runabout type. The upkeep of these machines was very high, owing to the excessive repair bills. They served a useful purpose in our practice, but the greatest advantage was in teaching us the game. After two years of this experience we discarded the machines in favor of our trusted friend, the horse.

In 1911 we went back to the automobile, buying new modern roadsters of 25 and 30 horse-power, weighing 1,200 and 2,000 pounds. Our experience is as follows:

Light Car.—The upkeep is not so much, tires, gasoline accessories and all fixtures being much cheaper. On this car (224) a magneto generates its own electric light, making a net saving of about $5 a month. This car has two forward speeds. On high gear, we can go any hill in our section.

Heavy Car.—This is a handsome, strong and durable car (195). On long trips with heavy roads it is preferable. It has three forward speeds. In intermediate gear, this car will climb any hill satisfactorily, no matter how rough it may be. The engine does not have so much vibration, consequently not so much noise. The lighting system (196) is satisfactory. The cost is $300 more than that of the light car.

When the roads are dry we can do twice as much work and do it very much easier than with the horse. We find it very much cheaper than keeping four horses.

Many a wiggle breaks a knuckle.

The total expense of the light car is about $10 a month and that of the heavier is about $15 a month. That the automobile is here to stay we have no doubt, and in the future we shall not try to do our practice without the aid of good machines. We have our own garage, which makes it less expensive and much more convenient.

Our advice is, do not under any circumstances buy a second-hand car unless you want to learn at a very dear price. The light, new, modern roadsters are cheap, dependable and will do the work in a satisfactory manner.

Drs. Burrus and Duncan, High Point, N. C.

THE ELECTRIC THE DAINTY CAR

THE electric vehicle will be the physician's car for city use in the future. The electric is the de luxe car in every respect, with no grease or clamoring noise to irritate one's temper. It always works, in rain or shine, cold or warm, and 30 degrees below zero this winter has not hindered the running of the machine. We have had unusually deep snow (18 inches) in Minneapolis and vicinity and I am convinced, from my experience in bucking snow in the suburbs, that I can hold my own with any 30-horse-power gas machine.

Some electrics are now furnished with the solid rubber tires which are guaranteed by the manufacturer for 10,000 miles, and it is certainly a satisfaction to know that one can always return to the garage without a punctured tire. The hardness of the tires is offset by proper spring adjustment, making riding as easy as with pneumatic tires. All one has to do when starting an electric machine is to manipulate the handle of the current controller, thereby saving priming, cranking and an occasional automobile fracture of the forearm.

Certain manufacturers of storage batteries (134) are now in a position to furnish batteries which they guarantee for 30,000 miles with the minimum charge of 50 miles. Ordinarily, a new battery for the first year will give a mileage of from 75 to 90 miles per charge, but of course the life of a battery depends on the care and attention given it. All first-class electric cars have a speed of 20 miles per hour, which is certainly faster than the city ordinances permit.

My electric brougham (133), costing $3,100, is operated through a non-reversible steering-gear, which is an admirable feature when running, at all seasons, over very rough streets, and the shaft drive in an electric has the same advantage as it has in a gas car.

John H. Rishmiller, M.D., Minneapolis.

THE ELECTRIC CAR FOR THE CITY PHYSICIAN

THE electric vehicle is practically an unknown proposition to nine-tenths of physicians. Experimented with in the early days, when carriage builders knew nothing of batteries, and when batteries themselves were cranky things, the average physician found the electric carriage an unsatisfactory and costly toy, entirely inadequate for his requirements, and he therefore very properly turned to the gas-car field for transportation. So often was this disaster demonstrated in every community, and so badly does a little decayed fruit contaminate the whole basket, that to-day it is almost impossible to get a physician even to look over the electric line at the annual exhibit. Yet, in the face of this almost unanimous opinion of the profession, I venture to assert that for the average city physician the modern electric vehicle is the ideal method of transportation. This assertion is based on six years' continuous service with one electric carriage, covering over 35,000 miles, and running to-day almost as well as the day it came out of the factory.

ELECTRIC CHARGED AT HOME

I bought my electric carriage runabout type (146, page 1071, F), in April, 1906, for $1,200. I was persuaded to do this, not through any especial knowledge of electrics, but because the gas cars at that time were running badly. So long as I was dependent on a public garage, my service was not good and the expense was high. As soon as possible, I put in my own charging apparatus, and at once experienced a change for the better. My carriage is at hand for instant service day and night. It is quiet, clean and with sufficient speed and mileage for almost any requirement. The mileage of this old carriage does not compare with the newer and improved (and more expensive) models, but I still have a range of about 30 miles on a charge and by charging during the noon and the evening office hours, if desired, this mileage can be more than doubled for a day's work. I find this ample for my requirements.

ELECTRIC NOT STOPPED BY SNOW

The electric is not a car for the joy-rider or for long cross-country runs, though we get our best mileage on well-packed dirt roads. My carriage is seldom laid up for more than a day or two for slight repairs, and has been in commission constantly, every year, except when in the paint-shop. It takes snow and ice with very little trouble, though this uses more electricity and reduces the mileage accordingly. Winter cold and bad weather have no terrors for me, for with a storm-sheet, the driver is entirely protected.

CAREFUL ATTENTION PAYS

The electric has its limitations, but it also has its advantages. My maximum speed is 15 to 18 miles an hour, but this slow speed is one secret of the long life of the car, as it does not jolt itself to pieces over rough roads. Neither can it freeze up in the coldest weather. It is simple to operate, noiseless and dignified. The battery—that hoodoo of the uninitiated—gives no trouble if some regular attention is paid to it. My annual mileage has averaged about 6,000, and after 35,000 miles of service, under average city street conditions, I see no reason why it should not repeat the performance. It may be well to state that this service is not the result of luck. An electric vehicle requires intelligent care. The battery must be watched and charged with some knowledge of its structure and capacity, while the motor and running gear must be under inspection frequently. I have always made it a practice to replace any weakened or broken parts, immediately. Only by anticipating trouble is it avoided.

COSTS MORE PER MILE BUT LASTS LONGER

Mile for mile, the electric is probably more expensive than the gas car, but when the life of the car is taken into consideration, to say nothing of freedom from trouble, the cost is much less. My expense for the past four years has been about $1 a day, all the year round. This includes repairs, tires and a new battery about every two years. Without his own garage or its equivalent, I would advise no physician to purchase an electric, but controlling it in this manner, and with a proper recognition of its limitations, my opinion is that the electric carriage is the finest vehicle for the city physician's work.

Walter S. Grant, M.D., Brooklyn.

STICK TO ONE GOOD MAKE OF CAR

UP to four years ago, I was an ardent admirer of the horse and I would not listen to anybody's views on the automobile question. Now it is just the opposite. I have been using the same make of automobile during the last four years, and am now driving the fourth car. I believe in sticking to one car, provided one gets satisfaction, and not in jumping from one make to another. After having used an automobile for a year, driving it about 18,000 miles over cobblestone streets, one comes pretty near finding out how that particular car will hold up, besides learning all about the mechanism and the adjustment. When another make is selected, the same trouble will be experienced with this as with the original car, until the mechanism is mastered. On the other hand, if the buyer selects a second car of the same make as the first, the troubles decrease; by the time the second car is purchased the owner knows exactly what it requires to make it run best and how the best service may be had at the lowest expense; besides, he always has a good-looking car, and need not lose time for painting and overhauling.

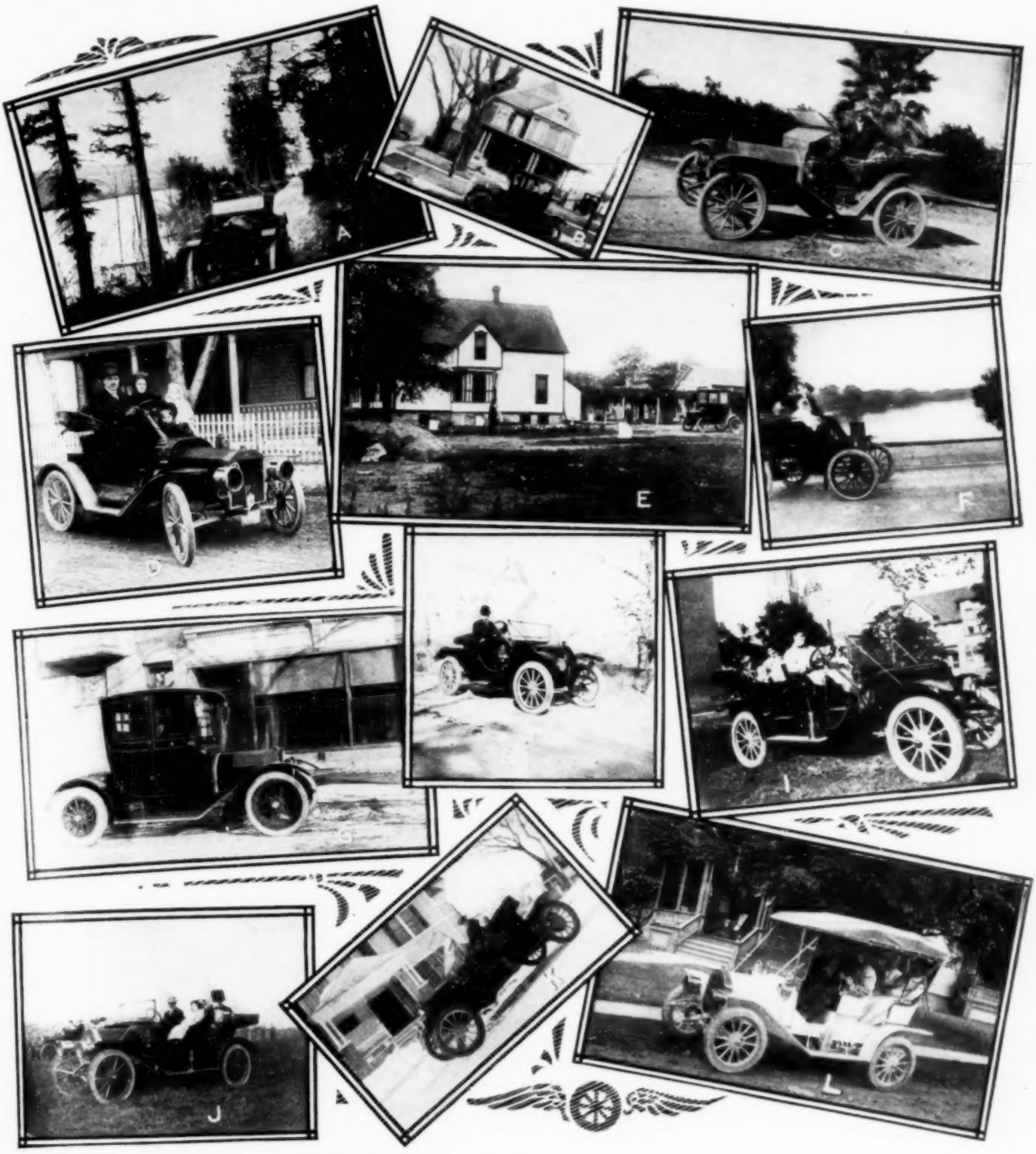


Fig. 41.—A group of automobiles from many parts of the country:

A. Dr. F. B. Bogardus, Eureka, Mont., with a bit of pretty scenery. The country is hilly but the roads are good. A few words from Dr. Bogardus are on page 1080.

B. Dr. C. M. Bowcock, Springfield, Ill., with his automobile (203), residence and garage. Dr. Bowcock has an underground gasoline tank, which enables him to buy gasoline in large quantities at quite a saving and lessens the cost of insurance considerably. He enjoys the coupe very much for city practice.

C. Dr. W. W. Roblee, Riverside, Cal., in one of the orange groves. "Here," he says, "every street in the city is paved and practically all the country drives are either macadamized or oiled. Under such ideal conditions the small, moderate-priced runabout can be used every day in the year and the cost of upkeep is very small. If every community will boost 'good roads' as we have done, the automobile will be a success in every way. Hardly any physician in this community uses a horse."

D. House, auto (113) and family of Dr. Charles W. Pagel, Greensburg, Ind. Dr. Pagel's article is on page 1061.

E. Dr. William D. Weis, Hammond, Ind., and his house and automobile (158). Dr. Weis' article is on page 1054.

F. Dr. W. S. Grant, Brooklyn, in his electric (146) at an attractive spot in one of the parks.

G. The car (175) of Dr. J. M. Nicholson, Chicago, in front of his office. Dr. Nicholson's article is on page 1052.

H. Dr. E. W. Knowles, Greeley, Colo., in his automobile (187) among the Platte River cottonwoods.

I. Dr. A. J. Caffrey and family, of Milwaukee, ready to start on a pleasure jaunt to Oconomowoc in his touring car (204).

J. Dr. T. R. Ayars and family, of St. Louis, watching for Roosevelt on the aviation field. Dr. Ayars' article is on page 1073.

K. Residence and automobile (107) of Dr. Roy V. Baketel, Methuen, Mass. Dr. Baketel's article is on the next page.

L. Dr. E. B. Huyck, Oak Harbor, Ohio, with his automobile (174) in front of his residence. Dr. Huyck tells about his automobile on page 1080.

I attribute my success with automobiles to this plan. I have used two touring cars, one roadster and one torpedo and I find that the touring cars are too heavy and clumsy for a physician's work. In towns where most of the streets are paved with cobblestones, a heavy car will wear out too easily. The light car holds up much longer under these conditions.

I have been using a car (150) which I think is the ideal "doctor's car," either for city or country work. The four cars cost me $1,600 total purchase price and I know of no car on the market to-day which would have lasted as long and with less expense than these four. I have had about 55,000 miles' use, with less expense and less trouble than horses would have cost me for the same time and distance.

I have a garage back of my house; if one has an automobile under personal observation, he is much better off than if he keeps it in some garage, far away from home.

A. H. A. MAYER, M.D., Baltimore.

AN OUTLINE OF THE IDEAL CAR

THERE can be no question of the utility of the automobile in the practice of the physician. Any means of transportation that will take him to his patients quickly and safely and will increase his sphere of action without increasing materially the expense of transportation is practical, and that is what the auto has come to be to the busy doctor. The horse has been displaced as the doctor's right-hand man.

The ideal equipment for the physician would be two cars, a runabout for business only and a larger machine for pleasure. This the average physician cannot afford, but practically the same result may be attained in one machine of the demi-tonneau type. This, with the rear seats removed and deck in its place gives the roadster with ample baggage space which is ideal for business purposes; or by a few minutes' work the tonneau can be put into place and the car made ready for family and pleasure use.

My idea of such a car is as follows: Four-cylinder, 25 to 30 horse-power, sliding gear transmission, three speeds forward and reverse, wheel-base 112 inches. Tires 33 by 4 inches, giving long wear with ample size for weight carried, and with the following equipment: top and cover-slip, wind-shield, speedometers, shock-absorbers, tire irons, clock, horn, quick detachable demountable rims, three oil lights and two electric headlights. These latter can conveniently be run from a storage battery and I have found it a good plan to have two twenty-hour batteries in use, using them alternately. This arrangement is extremely simple with absolutely nothing to get out of order. Such a car can be sold for profit at $1,250, and the expense of maintaining it is not greater than that of one horse. [Dr. Baketel's house and car (107) are shown on page 1071.]

ROY V. BAKETEL, M.D., Methuen, Mass.

WHILE YOU'RE GETTING, GET A GOOD ONE

THE choice between a runabout and a larger car should depend, to a great extent, on the size of the purchaser's family. If it consists of more than two, he should buy a larger car so that all may share in its pleasures. The original cost and the up-keep of a runabout is much less, however, and this is the machine for the single man or the one who desires it for business purposes only.

AN AUTO COSTS MONEY

Do not be too deeply impressed by examples of low cost of maintenance, as most of these are exceptional cases. The upkeep of a two-passenger car amounts to that of a horse and buggy, of a five-passenger machine to that of a two-horse team. This estimate includes everything except an allowance for deterioration. The average expense connected with my $2,000 five-passenger car (139) is $65 a month, and this corresponds with that of most of my friends who have similar cars. It receives somewhat rough usage over hills and cobblestones, country roads as well as paved city streets. It is used every day of the year.

BUY OF A PERMANENT AGENCY

Do not buy an automobile except from a well-established agency. The one I obtained my car from discontinued business and it is necessary to send 3,000 miles for parts. Do not buy a cheap car. Pay more for a medium-priced one; its expectation of life, the saving on repairs and the satisfaction of knowing that you will get there amount to a great deal more than the extra first cost.

WILLIAM E. STEVENS, M.D., San Francisco.

HOW TO LIGHT THE AUTOMOBILE

ELECTRIC LIGHTS MAKE NIGHT DRIVING A PLEASURE

MY machine (128) has gone over 3,500 miles of all kind of roads and never had to be "pulled in or pulled out," and I have never been out a dollar for repairs except to have a puncture vulcanized. I found early in the game that the most annoying and unsatisfactory feature about the automobile was the gas lights, but fortunately I have been able to overcome that feature entirely. The magneto of this machine is built in the fly-wheel and generates more than enough current for the ignition, so that the excess can be used for the headlights. The outfit for the electric lighting can be bought for a small sum and comes made up, so that the owner can install it himself in a few minutes.

I never knew what real pleasure "night driving" was until I installed the electric lights. All there is to do now is to crank the engine and press the button and as long as the engine runs I have a light that is better than any gas light, whether from tank or generator, and one that is furnished at no expense.

After running 3,500 miles, my tires (129) show practically no wear. This I attribute to the fact that at all times they carry the maximum pressure recommended by the makers.

The practical car for a physician must be one that will do its work easily and quickly on the hilly country roads as well as on the city streets. My car is light and has enough power, so that I very seldom have to go into low speed to take any hills in this country so long as the roads are hard and dry.

I have no garage expense as I keep the machine at home in a shed, 15 by 10 feet, which I had built for the purpose. I look after the machine myself and have it cleaned at home. The actual running expenses are small as I get on an average of 20 miles to a gallon of gasoline and 250 miles to one gallon of oil.

HARRY X. CLINE, M.D., Marion, Ill.

INCANDESCENT ELECTRIC HEADLIGHTS

IN these days of multifarious schemes called automobile accessories, most cunningly devised, most of them for the main purpose of promoting poverty among motor owners, he who advises investment in one of these luxuries must be blessed with rare temerity. That impeachment I confess. Nevertheless, imbued with the laudable ambition to share with my professional brothers the advantages of my own experience, I must needs rush into print to let them know of my career with incandescent lights in the search-lights of my machine.

Since the year 1907, when I began as a motor owner, one of the most pesky of the many pesky things which in those days made automobile ownership far from an unmixed pleasure was the unreliability of the lighting system. The old

primitive acetylene generator was impish in its perversity. No sooner was it put in repair than the rubber tubing which conducted the gas to the lights would rot, and the copper tubing which was substituted therefor would become cut by the frame in those places where the tube had to be bent. Burners so lacked durability as to seem to bear no more than an evanescent existence, and when by some chance they should be working well, the normal flame would crack the reflecting and magnifying mirror. Expense *ad infinitum!*

I tried an electric system which, at that time (about two and one-half years ago), was new. The headlights were converted into shape for the use of incandescent globes, and connected with a storage battery carried for that purpose only. The result could be likened to that obtained on a patient with the use of amyl nitrite. The effects were merely temporary. Good lighting would be obtained when the battery was freshly charged, but would last satisfactorily for only a few nights. Expense item as great as before.

Eight months ago I purchased a new car (132) and I was determined this time to solve the infernal lighting problem. The system of running lights from a separate magneto seemed the most feasible one available. The idea at that time had not been thoroughly tried, and in California the apparatus had not been on the market very long. The initial expense amounted to about $55, which would have been greater had special lamps been required, but as most new cars come in these times with lamps equipped for incandescent bulbs, that item was eliminated. The magneto is mounted next to the fly-wheel of the motor, and is set in motion by a wheel of its own which is made to impinge on the fly-wheel by the release of a spring controlled by a lever conveniently placed on the dash.

The success obtained by this arrangement has exceeded all hopes. The only expense, apart from that of installation, has been 80 cents for two new bulbs which were bought to replace burned-out ones, and considering the length of time elapsed and the large amount of night running done, that is inconsiderable. The magneto itself has not even been inspected since its installation. The convenience, especially on a rainy night, of obtaining light by merely releasing a lever, is enormous. The connections are simple and have never failed. The amount of light with this arrangement of course varies with the speed of the motor, and theoretically that is some considerable objection. Practically I have not found it to be so, and if ever I wanted a stronger light, by releasing the clutch and speeding the motor I could obtain illumination which would serve for almost two city blocks. In fact, this very plasticity, which theoretically is undesirable, works practically to advantage.

I have had only the headlights connected to this system, leaving the other lights oil, so that the car is lighted when standing. The system which combines dynamo and storage battery, with all the lights run from a battery constantly charged by the magneto or dynamo, has attained what seems to be the ideal in lighting, but of course is vastly more expensive. There is no doubt in my mind that electric lighting by means of a dynamo or magneto is far superior in every way, including financial, to the old system of acetylene gas. [An illustration of Dr. Wiel's car is on page 1079.]

HARRY I. WIEL, M.D., San Francisco.

AN INSTANTANEOUS GAS-LIGHTER

ONE of the most important accessories recently added to the automobile is the instantaneous lighter. Many a time I have experienced difficulty and inconvenience when I had to step out in the wind and attempt to light my gas headlights. After canvassing the field pretty thoroughly, I finally experimented with a gas-lighter (201) which has just been put on the market. It has been a source of endless satisfaction to me; the convenience with which I can light my acetylene lamps from the driving-seat has been so pleasing that I want my fellow practitioners to know it. There is another advantage, however, namely, the saving of acetylene gas. It is true that the waste did not mean a great expense, but the inconvenience of having to change the tank is at least an annoyance. The saving comes from the fact that when the car is standing and it is not necessary to have the headlights going, I simply turn a switch and put them out. The advantage of the new gas-lighter over any other that I have seen comes from the fact that it is simplicity itself and comparatively inexpensive. I paid $10 for mine and the up-keep is nothing. There is no battery to wear out and to fool with, as the spark is furnished by the magneto or other igniting system of the motor.

S. EDWARD SAUER, M.D., Chicago.

THE COST OF RUNNING A PHYSICIAN'S AUTOMOBILE

WHAT TO DO WITH YOUR OLD CAR

IN buying my first car, I answered this question very satisfactorily for the other fellow, for I bought his car, which was then two years old. It had been fairly well taken care of and looked good, but manufacturers had not brought their products to the degree of perfection then (1907) that they have since. Troubles multiplied faster and were not so easily adjusted as now, so after a year of indifferent use I traded it for a mere pittance, firm in the belief that I would never own another car.

In the spring of 1910 my resentment at my loss and inconvenience had abated somewhat and, seeing so many cars being used with success and pleasure, I again invested in a car (138). After two seasons of very satisfactory use, except for the usual unsatisfactory experiences with repair men, I was confronted with the question that heads this article. The car was a four-passenger, 30 horse-power, costing originally about $1,400. I had an exceptionally good engine but the paint was dull and worn off in places, the fenders were badly rusted out, and, of course, the car lacked some of the things thought so essential in the latest models.

THE DIFFICULTY OF TRADING A USED CAR

I went to the manufacturer's agents and endeavored to trade it in on the latest model, but was quietly informed that they would sell me a new car and use their best efforts to sell my old one for me, but that they could not afford to carry my old car; I also felt that I could not afford to own two cars so dropped negotiations with them and let it be known to some of the other agents that I was in the market for a new car on a trade. I saw several cars similar to my own, ranging in price from $900 to $1,500, but they all placed about the same value on my car, $400 or $500.

The best trade that I could make was my car and $460 for a car smaller than mine with less horse-power, and one that I considered inferior to mine in every way. Other trades ranged up to $1,000 and my car for a new one. Any one of these trades would have put me in the same position in another year or two when in the natural course of events I would be debating again whether to turn my car in on a new one or have it fixed up and if I should trade it I would have to lose as much on it and very likely more than the value of the car I had traded for it.

PROBLEM SOLVED: OLD CAR REPAIRED

After consulting several repair men, I finally let one have it who painted it, put on rear doors, which had not been on before, put on new fenders and thoroughly overhauled my engine for a total cost of less than $150. My car now looks like a new one, runs better than some of the new ones I

have seen and I am sure the depreciation will not be as great as on a new car, and in another year or two it will still be only an old car and I can sell or trade it for something of value.

My advice, therefore, is to keep the old car at work so long as the vital parts do not have to be replaced, unless you are in a position where it is not necessary for you to economize.

Fig. 42.—Automobile (206) and residence of Dr. J. L. Bolt, Easley, S. C.

T. R. AYARS, M.D., St. Louis.

EXPENSIVE EXPERIENCE

WHEN a medical friend offered to trade me an automobile for my team, I had been driving horses in the practice of medicine for twenty-seven years. I traded without seeing the machine, which was a five-passenger car ($2,500) (116); but my friend said that it was in good condition, having been run only six months. After making considerable necessary repairs, I proceeded to learn to drive, under the direction of an experienced driver. I got along pretty well till I came to a bridge across a small stream. As the forewheels struck the edge of the bridge, which was elevated several inches above the roadbed, the steering-gear broke and before I could get my wits together sufficiently to stop the machine it had crashed into the side of the railing. Fortunately the railing of the bridge did not give way entirely, and we were saved from a watery plunge and perhaps something worse, as the bridge was about 12 feet above the water. This experience cost me $100 for repairs. I kept the machine for twelve months, getting perhaps one month's service out of it altogether, in the meantime making many repairs, buying tires and equipment. With it all I gained some experience of several kinds. At the end of the year I sold the machine for $750, and after balancing my automobile account I found that I was out $1,000 and my horses.

My second experience was with a steamer (117). My son induced me to stand his security for the purchase of this car with the view of running it for hire, he believing that he could within a year or two make sufficient clear money to pay for the machine. Within a few months I found that the boy was not only not making any money, but was not getting enough out of its hire to pay for the maintenance of the car. Being responsible for the purchase price, I bought the car of him in order to save both him and myself. I used the steamer in my practice (I do only surgery and not a general practice) for a year and got some very good service and considerable pleasure out of it. When the steamer is in prime condition it is the most powerful car I know; but it is not a practical proposition for one who is not a skilled mechanic and trained to the special problems embodied in the automobile steamer. At the end of the year I was fortunate enough to sell this car and found, on footing up the bills, that my second experience had cost me a little over $1,100.

In June, 1911, I bought a five-passenger car (118) which has proved to be a very good machine in many ways. The maintenance for the eight months I have had it has cost $358.89, which is nearly $1.50 a day, besides the depreciation on the value of the car. I have run the car 5,927 miles, making the cost of the maintenance per mile a little over 6 cents. I have bought four new tires; one of the front tires, however, has run the entire eight months without ever having been deflated and is in fairly good condition to-day.

J. W. LONG, M.D., Greensboro, N. C.

SIMPLICITY AND ECONOMY

ESPECIALLY in the South, the automobile is usable during the greater portion of the year; it is possible, however, that too much has been expected of any one machine. In many cases the shortcomings are due to the mechanical ignorance of the physician himself; many a man would like to have a car were he assured that he would not have to rely in the "yours for business" garage man. Whatever car we own, let us thoroughly understand its construction, how it works and why, and many of the little troubles that end in larger ones will cease to exist.

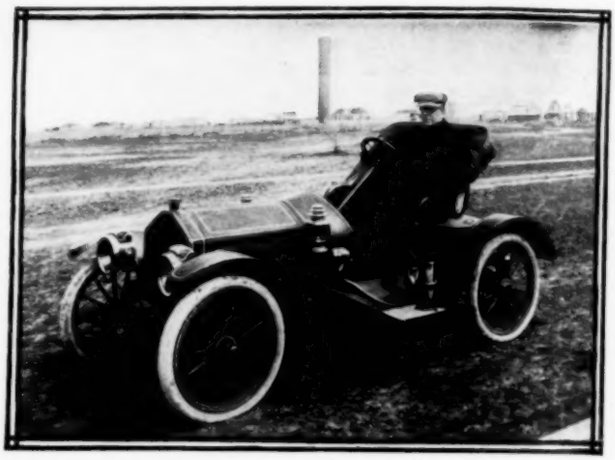


Fig. 43.—Dr. A. W. Davisson, of Corpus Christi, Tex., in his runabout (225), with the town in the distance.

If a prospective buyer will listen to all that is told him by the automobile salesman regarding the good points of his car (and the shortcomings of the other fellow's), and believe that all the automatic attachments thereon will "always, without fail, work" and that the whole "blame thing" is filled with brains, he will change his views some day when he is about ten miles out in the brush with a balky "self-starter" and no crank (but himself) handy.

I believe there is many a physician in moderate circumstances who would really like to become the owner of a car of inexpensive first cost and of low up-keep expense—a car that he can take care of himself, a car that will run when and where any other car, regardless of first cost or up-keep, will run, and in most places that a horse and buggy can travel—a car that is first of all non-complicated, with few useless parts to worry one. My car is never in a repair shop and seldom do I have to do more than tighten some nut or make some simple adjustment. The up-keep and running expense of my car is less than half what one horse would cost me in good weather, while in bad weather when not in use the expense is nothing.

When the friction-drive wears out I readily put in another at a cost of $2.60 plus three hours of my own time or that of a non-mechanic Mexican. I have now run my car eight months with not one cent's expense for repairs, the above friction excepted. My car (225), is one for the physician in moderate circumstances who wants a car that can negotiate hilly, rough roads, the car for tire-economy, and without intricate (automatic?) mechanism out of sight and

non-get-at-able—a car with seldom a case that the wise garage man can diagnose as a bad case of appendicitis with adhesions (to one's pocketbook).

Probably one of the greatest causes of dissatisfaction with the automobile to-day in the hands of physicians, many of whom are not mechanically informed, is the fact that the automobile is too complicated in its construction. How many understand the exact workings of a "differential" or the contents of a "transmission case"? What cannot be seen cannot be thoroughly understood. All the mechanism of my car can be seen and examined at all times with the least possible trouble. And with no water-pump, no batteries, and no oiling to watch, I think I have the car for the busy physician who wants to "get there."

A. W. DAVISSON, M.D., Corpus Christi, Tex.

QUACK GUARANTEES

I ALWAYS carefully read each Automobile Number of THE JOURNAL and have always learned something from someone's else experience. I hope that someone may benefit by mine. I am not a novice in the automobile world. I owned two cars before, and have had all kinds of experience with repair shops and mechanics—good, bad and very bad ones.

My present car (154), bought second-hand, had been used by the original owner for six months and the one year guarantee accompanying it was transferred and assigned to me. The guarantee covers "broken and defective part or parts FROM ANY CAUSE WHATSOEVER if not in fact due to misuse, negligence or accident."

In less than a month the car commenced to knock, and I at once took it to the factory branch here and they overhauled it. The bill amounted to $108. They allowed me $28 for broken gears but refused to allow me $6 on a reverse idler pin, reverse idler gear and crank shaft bearing bushing,

Fig. 44.—Dr. C. M. Nicholson, St. Louis, with his automobile (205) in front of his residence on Delmar Boulevard.

claiming they do not replace worn parts. I argued that the parts showed an unnatural wear for a car that had been driven only 7,000 miles and, therefore, that the parts were defective. My arguments were overruled and I had to pay.

A couple of weeks later my steering wheel showed too much lost motion. A worn steering gear was replaced and I had to pay for it: again the same argument—"natural wear and we do not replace worn parts."

After running the car 500 miles from the time I overhauled it, the clutch collar got worn out, and I took the car again to the branch factory for repairs. The foreman called my attention to the fact that my front spring was broken and a new spring must be put in. I told him to do so. They presented the bill for $16.35, refusing to allow anything on the guarantee, claiming that the clutch collar was worn out; and, as the factory turns out perfect and tested springs, and as their foreman did not notice any flaw in the steel, therefore, the breakage must, of necessity be due to misuse, or accident, as driving into a choke hole, and they did not have to furnish the spring, valued at $6.

My position in the matter was that I neither misused or neglected the car, nor met with any accident—the spring was simply unable to stand the ordinary traffic, due, perhaps, to poor material and workmanship, and, if a spring cannot withstand an ordinary choke hole, which is unavoidable in ordinary traffic, such a spring is defective (also a source of danger to the driver's life) and certainly covered by the guarantee. Again my arguments were overruled, and it is again: "Pay the bill or you don't get the car."

Their argument about the spring seems to be: The factory turns out perfect and tested springs, therefore the breakage is due to misuse, negligence or accident and, therefore, not covered by the guarantee. To carry the argument further means that any part or parts are either worn out, or, if broken, it is due to misuse, negligence or accident, as the factory turns out perfect and tested parts and the foreman does not find any flaws in the steel, therefore it never comes under the guarantee and they do not have to furnish anything, unless they want to do it—when they think that your friend is about to buy a car of the same make. In short, you cannot hold them to their guarantee, as they put in jokers—"misuse, negligence or accident"—enough loopholes to evade their guarantee.

I do not know the legal aspects of the subject. I am sure their sophistic arguments would not be upheld by any fair-minded judge, as the spirit of the guarantee is not in accordance with their contention, as is plain in the case of my broken spring, where small pieces of the inner leaves were broken. But how many physicians, like myself, have the time and inclination to go to court? The result is they prefer to pay the bill, even if they are convinced beyond the shadow of a doubt, that they are in the right, as was the case with my broken spring. Now to the moral. Have the guarantee read that the factory will replace (means they will furnish parts and labor; instead of the word "furnish," which means you pay for labor) broken or worn parts, unless caused by accident. Otherwise you are at the mercy of the manufacturer who, like the quack, promises everything before you buy, and after you buy, falls back on the jokers of the guarantee, tells you to pay the bill or you don't get the car, adding insult to injury.

GEORGE I. BLUHM, M.D., San Francisco.

TWO-CYLINDERS ARE ECONOMICAL

MY three years' use of the automobile has been extremely satisfactory from every standpoint. I live in a part of the

Fig. 45.—Two cars (144, 145) of Dr. B. F. Stevens, El Paso, Tex., in front of his nifty bungalow.

country where sunshine and good roads are the rule, where a machine may be used with as much comfort in the winter as in the summer.

My first machine, a 16 horse-power magneto equipped runabout (144), cost $825 complete new. The total expense the first year, including all repairs, gas, carbid, tires, etc., was

$180. For the second year it was $200 and the third $250. This does not include depreciation, which should not amount to more than $150 a year, as there are two machines of similar make in this town, which have been running four and five years, respectively. Their owners declare they run as well now as ever. This machine will do the work of two horses at least. Even if only one horse were used, it could not be maintained for less than $200 to $250 a year, so in my experience this two-cylinder machine is more economical from every standpoint than even a horse.

I have recently purchased a four-cylinder roadster (145), not because the old one was worn out, but because it looked a bit antiquated. The new car has style, speed and easy riding qualities. It will cost three times as much to maintain as the old one. It will not do any more work or any better, but it has the one thing, "looks."

I know from my experience that the auto is cheapest from every point of view, where it can be used safely and comfortably without straining its mechanism, every day in the year. The ideal "doctor's machine" should not weigh over 2,000 pounds and not cost less than $1,500. It should have pneumatic tires; time has eliminated the solid tire and high-wheel affair for most of us. Do not experiment with new and fancy makes; let the other fellow, who has money and time to spare, do that.

B. F. STEVENS, M.D., El Paso, Tex.

A WAIL FROM A HUMORIST

SHOULD a country physician buy an auto? If he does I would strongly advise him to also buy a chicken incubator and quit the practice of medicine, for between the two he will have no time to fool away with patients.

A country doctor has about as much business with an auto as he has with salvarsan. Unless he is a man of means and practicing only to please a wealthy and senile relative I would advise him to stick to old Dobbin. Despite any catalogue or booklet one may have read, the auto is not a mud-lark, and despite all agitation, good legislation and taxation one will often find mud on the public highways.

Last June I fell for an auto and I am glad to say that I have kept no account of my expenses, for if I had, I would dispose of my car (155), and I want it. I believe, however, that it is as good if not a little better than any other car of the same price.

I note that some physicians find using an auto as cheap as horse and buggy, but I notice no notary's name signed to such statements. "The auto is a source of great pleasure"; so is a steam yacht.

What does it cost to keep a car? Nothing; one had better not run it, however, but just content oneself with keeping it. Every man flatters himself that he has a mechanical turn, and that he can easily get the hang of the thing and repair his own car; the only cure for him is to buy a car.

"The automobile has come to stay"; that can be proved by any one who has a second-hand car for sale.

The above is addressed to the country doctor, and not to the man who has paved streets to travel over, and a repair shop every few blocks. I consider the auto number a great service to the physicians.

ELDRED A. DAVIS, M.D., Earlington, Ky.

BEST PROCEDURES WHEN BRAKES FAIL TO WORK

MY first experience with an automobile dates back to March, 1904, when I purchased for $700 a single-cylinder, chain-drive runabout with a 6½ horse-power motor (160). In two years and a half I ran the car 12,000 miles, accumulating considerable experience in motoring, the most unique being a ride of 16 miles back to my office with a broken crank-shaft, the break being to the right of the driving-sprocket, the only inconvenience resulting from it at the time being that the clutch was slow to engage on the high speed. The car taught me a great deal, the only parts that did not give trouble being the full elliptical springs. But as cars went in those days, I had no cause to complain and considered myself fortunate to sell it for $150 in cash, the final cost of running the car being 15.73 cents per mile.

ACTUAL COST OF USING AUTO

Four years ago I bought my second car for $1,460, a two-cylinder, 20 horse-power, five-passenger, light touring car (161). So far I have run it 24,000 miles, mostly through the streets of Philadelphia, with a jolt across the car-tracks at almost every cross-street. The final cost, including the depreciation in value, but not counting the interest on the price of the car, has been 15.4 cents per mile. The records for each of the four years are as follows:

Year	Total Mileage	Total Expense	Repairs	Cost Per Mile
First	7,000	$542.83	$ 8.68	$0.077
Second	5,500	698.58	167.00	0.127
Third	5,000	508.36	118.00	0.101
Fourth	6,500	724.72	106.03	0.111

In explanation of these figures it must be said that the depreciation in value of the car has not been included, accounting for the difference in the figures in the "cost-per-mile" column from the rate of 15.4 cents given above. The great jump in the cost of repairs in the second year was due to a general overhauling with replacement of all worn parts in the second half of the year, after about 10,000 miles had been covered.

If anyone considers that my car has been run at a low rate of expense, it can be explained partly by watchfulness on the part of the garage man and myself, but mainly on the fact that all my repair work has been done at a shop kept by a machinist who was originally with the agents and who understands the car thoroughly, besides being a skilled mechanic.

The makers were willing to replace one or two broken parts after two and a half years of running. This is a point worth considering by anyone about to purchase a car, but it is difficult to ascertain how the maker is going to treat his patrons, except by experience.

GARAGE EXPENSE

If the rate of 15.4 cents per mile seems high it may be accounted for by the great depreciation in the value of a car in four years (relatively greater, the higher the price of the car), and by the fact that I have always kept the car in a public garage, paying $15 per month for three years and $12 per month for the fourth (the benefits of competition); and I have always had the garage man keep the gasoline and oil tanks filled, paying 16 cents a gallon for "gas" and 75 cents for oil. With the exception of one month I do not think I have been overcharged. I know that I could get gasoline and oil at lower rates, but that would necessitate going for them and filling the tanks myself; in fact, I tried it for a short time, but it proved too time-consuming and inconvenient, especially when the supply of gas ran out once and I had a stroll of a mile or two along a dusty suburban road on a hot summer day to the nearest garage. At the garage, the car is washed every night and the brass-work polished every morning and then the car is delivered at my office at the close of my morning office hour.

TRIED CHAUFFEUR AND RESUMED DRIVING

I tried a chauffeur for one month but found the strain too great on my nerves; having driven so much I could not get up the necessary confidence in somebody else unless I rode blindfolded, so I resumed my seat at the wheel. I have had two minor collisions, in which, of course, I was in the right both times, the result of the first being that the other car (of the same make as mine, and run by a doctor) needed a new running-board, while from the second my car came out with a similar need.

WHEN BRAKES FAIL TO HOLD ON A HILL

The most exciting time that I had was on a trip to see a patient out of town, when I had taken my wife and children for a ride. In going up a steep hill on the second speed there was a sudden thump which seemed to come from the gear-

box; the engine suddenly stopped and the car slid down hill backward. The brakes were unable to hold the car, so, setting the emergency brake as hard as possible, I climbed out over the levers intending to get a rock from the roadside to block the wheels, but in getting out I unwittingly released the brake-lever and pushed the change speed lever into the reverse, so that the clutch engaged and turned the engine over, and as the switch was on, the car gave a start which threw me on my back in the road. Before I could pick myself up, I saw the rate of speed of the car perceptibly diminish, which I learned afterward was due to my wife's presence of mind in cutting off the switch. As fast as possible, I got back to my seat in the car and steered it down hill backward until near the bottom where the slope was more gradual and the brakes began to bind a little, and with the help of some boys, who were fortunately near and replied to my request to put rocks under the wheels, the car was brought to a standstill just before the road took a sharp turn.

METHODS OF STOPPING RUNAWAY CAR

I had always heard that the course to pursue in such an emergency was to back off to the side of the road. But a colleague did this and the car upset, so I feared to try it. I have since learned that the proper thing to do in such an emergency (which seems to be happening to a number of cars) is to put the change-speed lever into the reverse, cut off the spark, engage the clutch and let the car descend the hill backward, slowly, the compression acting as a powerful and safe brake.

ALFRED HAND, JR.,
Philadelphia.

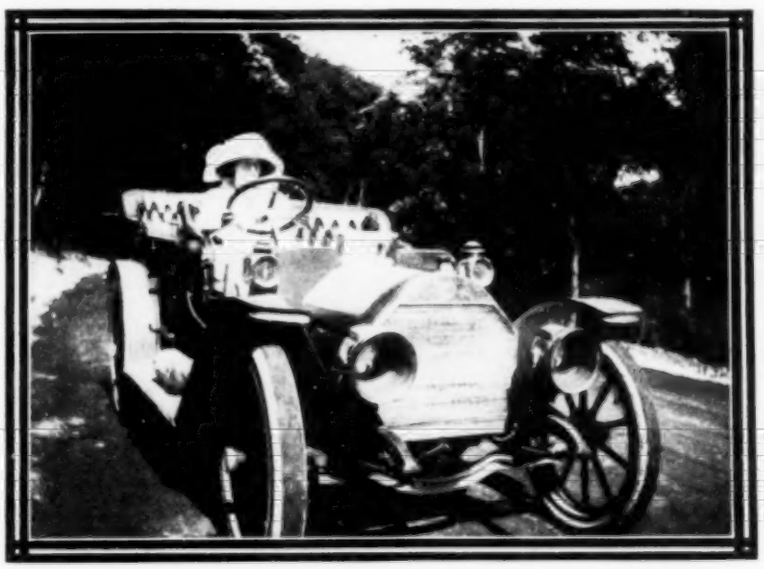


Fig. 46.—Dr. Dora Greene-Wilson, Kansas City, in her automobile (216) on one of the boulevards of that city. Dr. Wilson's article is on page 1060.

EXPERIENCES WITH A MOTORCYCLE

MY experience with motor vehicles in a country practice consists of two years with motorcycles and one year with an automobile.

In 1909, I purchased and used, during the entire year, a 3½ horse-power motorcycle (208). This machine had not power enough to pull me up some of the hills around here, but that wasn't my greatest objection to it. It was rigged with a flat-belt transmission, and that same flat belt caused me a world of trouble and annoyance; it would slip on the pulley, in spite of all the contrivances that suggested themselves to me or to others to prevent a belt from slipping on a pulley. Finally I got a chance to sell it; then I registered a vow, "Never again a motorcycle with a belt-drive."

Then, in 1910, I rode a 4 horse-power motorcycle (209) with a chain-drive, which proved very satisfactory in every way except that it was shy on power in getting up all hills; still, it was a big improvement over my first one, both in power and in the fact that I didn't have a minute's trouble with the transmission. I had no tire trouble with these machines, except two punctures, in the two years. I would get from 70 to 75 miles from one gallon of gasoline. Expenses for repairs were 45 cents the first year and $1.25 the second year.

In 1911 I purchased a runabout (210), as I felt that this mode of travel was more dignified for a physician, and while my experience with this auto during the year, driving it about 4,000 miles, was entirely satisfactory from a standpoint of freedom from mechanical troubles, it was still shy many points in its supposed superiority over the motorcycle. My tires, after the season's use, are still in fair condition, and should last me 2,000 or 3,000 miles more before having to be replaced with new ones. I have had only one puncture so far. I have driven it over all kinds of roads, rocky and muddy, through pouring rain and through some snow, and so far have never had to be hauled to town. That doesn't mean that the machine has never become balky or gone back on me, for it has, several times, but I have always been able to get it back into a sufficiently good humor to get home again under its own steam. My expenses for the year, for repairs, are $265. I get from eighteen to twenty miles per gallon of gasoline. I keep my machine at my residence in a small portable garage (223), built at an expense of less than $40. I look after my machine myself and do my own repairing. I use acetylene lights and a generator (211) and have had absolutely no trouble from that source.

The question of economy, or lack of it, in the use of the automobile in country practice depends more on the man who operates it than on the particular kind of machine. If you can't carry a tune, why try to sing? If you have no mechanical sense—and that doesn't mean that you should be a finished mechanic, but that you should have a reasonable amount of natural ability in that line—you had better continue to call on your patients behind the faithful old Dobbin. For a little tinkering in the wrong place on an automobile may cause lots of annoyance or prove quite expensive. A physician should be able to make his own repairs and adjustments and not have to send to the garage every time a nut works loose or a wire breaks or short-circuits. There are thousands of little things that may happen and do happen at times, and it costs 70 cents an hour to employ a mechanic to look for them.

To say that I am satisfied with motor-propelled vehicles for the physician only expresses it too mildly; I am delighted with them and couldn't think of going back to the horse and buggy, except when the roads are so bad that I am compelled to do so.

C. O. CRANSTON, M.D., Madison, Kan.

Take the Light, Simple Machine.—After a not inconsiderable experience, first with an electric, later with a single-cylinder gasoline car, and now with a four-cylinder car, I have, for the present at least, decided that the most economic investment for a medical man requiring or desiring an automobile for both work and pleasure is a modest-priced, perhaps even a low-priced one (say costing between $750 and $1,000) of sound construction—and I believe there are such on the market. A car of this kind can be operated at less expense than a larger, heavier, more elaborate and more complicated one; less oil and gasoline are required; tires cost less and last longer; new parts cost less; and, above all, depreciation is less, absolutely if not relatively. Of course the service that any car gives will depend in considerable measure on the manner in which it is used and the care that is bestowed on it.—AUGUSTUS A. ESHNER, M.D., Philadelphia.

It's a wise man that knows his own engine.

A MOTOR PIONEER

MY first power wagon was bought in 1904; it was the first ever seen in this part of the world. If I were starting in practice again, the first investment that I would make would be in an automobile. I am sure that the time saved pays for the machine, besides the pleasure. I have had several different machines and would buy one that would not run as quickly as one that would run. I have not found any difference in machines at the same price.

I use light machines on account of tire expense and trouble; I have run eighteen months without a puncture or tire trouble. I would not have a machine without rear radius rods. Carbureters are all good; the 1904 are as reliable as the ones made to-day. I use distillate for fuel; I never change brand of cylinder oil and the cylinders never carbonize. Spark-plugs last for years and the nine plugs in my engines have never been out of them. Through defective material I have been off the road three times and by rights should have been killed but escaped without injury. I have run machines about 40,000 miles and the only engine parts renewed were three piston rings in an air-cooled engine; I mention this because I think it remarkable that any thing could be made so satisfactory.

My first machine, a buckboard (213), I used continuously for several years; then I used a runabout (214) and another machine (215). I took the buckboard every place that the other machines have gone and about as fast and over worse roads, for the roads here have been greatly improved during the past two or three years. I use any spark-plug, but for a one-cylinder engine the plug with a central electrode, shaped like a little gear wheel, gives a great deal more power. I find distillate as satisfactory as gasoline for fuel.

Fig. 47.—Automobile of Dr. Walter Culin and view of the board-covered main street of Coquille, Ore.

To keep spark-plugs clean I use enough air to burn the carbon, and to clean carbon out of engine I run it light and open as much as possible. Having run a little while, the engine will be found to be clean.

WALTER CULIN, M.D., Coquille, Ore.

THE AUTOMOBILE VERSUS THE HORSE

ONE car will do the work of three horses, with less attention—hence the time factor—and with not above half the expense. Three horses at livery would cost $60 a month; shoeing, carriage and harness repair at least $25 a month more. My own car, a four-door, torpedo-body (207), costs me $20 a month, storage, washing and polishing; from $6 to $8 for gas; oil and grease not over $1.50 a month.

The above expenses are fixed. Repairs and tires, harder to estimate, make an average expenditure of about $400 for the auto, as against $1,020 for the up-keep of three horses.

The unsatisfactory feature is the repair of the automobile. Even when dealers keep parts in stock, if they are permitted to do the repair work the item charged for labor, at from 60 to 75 cents an hour, is the factor which makes something of a burden out of the average machine. My experience leads me to advocate the purchase of parts direct and the employment of a good mechanic to do the work, rather than to trust to the self-styled "experts" employed by the average dealer.

After making up your mind as to whether a runabout or a larger car is necessary, proceed to select a standard make. This at once minimizes possible repair bills.

W. E. ROBERTSON, M.D., Philadelphia.

THE SECRET OF GETTING EFFICIENCY

A physician's car should be heavy enough to hug the road when going at full speed but not so heavy as to cause excessive wear on the tires, and, to make riding comfortable, should have a wheel-base of not less than 100 inches. A car which weighs not less than 2,000, nor over 2,200 pounds, will meet the requirements. For the last year I have been driving such a car (187), a 30 horse-power roadster, and it meets all needs. It has been in daily use since the first week in March, 1911, driven in all weathers and over all kinds of roads.

The secret of getting the efficiency from any standard car is: 1. Be liberal with the oil and grease. 2. Keep the engine clean and the cylinders free from carbon. (A few squirts of chloroform or turpentine in the priming-cocks every two weeks will take care of the carbon. About every four or five months drain the crank-case, transmission and differential, rinse out thoroughly with kerosene). 3. The farther one stays away from the garage men, the better for the car and the purse. 4. Know the car, so any sign of trouble can be located. 5. Keep the tires well inflated to lessen tire wear.

E. W. KNOWLES, M.D., Greeley, Colo.

A CAREFUL ANALYSIS OF EXPENSE AND THE RETURNS THEREFROM

IN one of the Automobile Numbers of THE JOURNAL, it was stated that a physican whose income was not over a certain sum had no business with an automobile. Since my income comes rather close to this figure, my experiences may be of interest.

It is now three years, lacking a month, since I began with the automobile. During that time I have had three cars. The first, a second-hand two-cylinder (181), was good enough to learn on, but, after six weeks' use, I turned it in on a 1909 touring car (182). My real experience has been with this car, which was bought new and is still in use. I also have a small one-cylinder, air-cooled buckboard (183). I have run this very little, and though I still keep it, it has not proved a success.

USES BICYCLE AND STREET CARS ALSO

Soon after buying my touring car I sold my horse, which had been doing all my work in a hilly country town. My drives are not over 6 miles in any one direction, so that my transportation has been a problem of 15 to 20 miles a day, or often even less. I ride a wheel about the center of the town for seven or eight months in the year, and use the electric lines, which are unusually convenient, whenever I can. I have used my car almost entirely for business, as a three years' mileage of 8,289 will show; only occasionally throwing in a short pleasure trip to the beaches. In the winter, I use a stable horse (which I hire by the day) for two or three months, having kept my carriage and sleigh. I drive and care for the car myself; no one else has ever driven it.

THE YEARLY COST COMPARISON

The first cost of car and equipment was $1,366; I have paid for up-keep, in 1909 (half the season), $119.08; in 1910, $388.92; and in 1911, $338.92; a total of $846.92 for two and a half years' running, repairs and addition to equipment. The average cost of my horse and outfit for ten years was $350 a year. I have paid, then, as much for running my auto as for keeping my horse, aside from the first cost of the car, and the car-fare, horse-hire and cost of bicycles expended to save the auto. My transportation has cost me nearly three times as much as formerly. The longer I keep this car, how-

ever, the less the first cost will be per year; so that after two more years my transportation will have cost me only twice as much as my horse. Thus the relative increase will diminish each year.

MORE COST, BUT MORE BUSINESS, PLEASURE AND HEALTH

As an offset to this greater cost, I have done more business and have had more time to rest. I have had enough fun of an innocent and healthful kind to make up for all the expense, and have given a great deal of pleasure to my family and to the friends who have ridden with me. I do not regret my investment at all.

IGNORANCE IS NOT BLISS

My troubles were many the first year, but have become fewer every year since. The car had been hastily assembled at the factory. Nuts were loose, and the oiling system, my knowledge of which was conspicuous by its absence, was imperfect. I ran into a telegraph-pole and bent the axle and steering-rod. Then a nut in the gear-case became loose, and disarranged the transmission. When winter came on, I managed to freeze the radiator, because the garage people had told me it would be all right with the water drained off. I should have put in glycerin to fill the small pipes at the bottom, which never drain completely. There were many things I had to learn, such as the mysteries of dirt in the carbureter, the regulation of the needle-valve for cold and hot weather, the need of spring washers to keep nuts from working off, and how to make cranking easy by leaving gas in the cylinders when stopping, and using gasoline in the pet-cocks in cold weather.

Figs. 48 to 51.—Upper view, Dr. J. P. Torrey, Andover, Mass. Left view, Dr. Harry I. Wiel in his auto (132, page 1072) in front of the San Francisco City and County Hospital. Right view, Dr. J. W. Robbins, Naugatuck, Conn., an enthusiastic user of automobiles; he has two of the same make. The picture shows his runabout (217). Lower view, Dr. F. M. Vessells of Perryville, Mo., with his runabout (136, page 1057) in front of his residence.

FOUND A MECHANIC WHO UNDERSTOOD CAR

As long as I went from one garage to another, to men who knew little about the car, my troubles continued. Finally I found a man who knew this particular engine and who fixed me up once for all, with the result that, for more than a year, my only repair has been to have the valves ground once. I have a cleaner which I use to remove the dirt and preserve the varnish. Since using this, I do not wash the car, and find that it is more easily cared for. At present I have to keep the car in a cold barn, so that it is hard for me to try to use it in the winter months. I hope, however, to fit up a garage in a shed attached to my house, and to heat it with hot water from the furnace. This would make winter driving possible for me. You cannot work to any advantage over a cold car in a cold barn.

THE BEST TYPE OF CAR

My ideas as to the best type of car have changed during the last three years. For a man with long drives to make and an income large enough to afford it, a $1,500 or $2,000 car is good (for example, 184); but for a country practitioner with moderate income, a cheaper one, costing from $500 to $1,000, is, I believe, the better investment (for example, 185). It permits of frequent changes without so much loss on the first cost. The upkeep, moreover, is less, and the car is not so troublesome. I believe that a high-wheeled, air-cooled car with solid tires, such as is used for business wagons, would be very successful for winter use in the New England climate. The touring car is the most satisfactory, however, for all around work.

I feel no confidence in other than pneumatic tires. The amount of weariness is in large measure proportional to the shaking up; and an easy-riding car means better health, and years added to your life.

The automobile is a great benefit to the physician, and at first a great expense, too. The expense will be decidedly lessened after experience. I would not go back to the horse for any money. The fun of getting around quickly is worth the price of admission. Nevertheless, the statement referred to in the beginning of my story, about an auto and a given

income, is right unless one uses the car carefully and helps out expenses in every way. It is especially important for a man to avoid the "joy-ride" habit, which adds much to expenses. Nowadays we have to be on hand all the time in order to get the business, or somebody else will take our place.

J. P. TORREY, M.D., Andover, Mass.

DISCOUNT BETTER THAN GUARANTEE

MY first car was a one-cylinder (218), my second a two-cylinder (219); my third and latest (220) is the most satisfactory of the three. It has been in use eight months and has traveled 3,500 miles. The cost of maintenance and repairs in that time has been $193.07, or about 6 cents a mile. Deterioration and interest on cost of the machine and the little garage in which I keep it would probably be an equal amount, making all expenses about 12 cents a mile. This is more than the cost of one horse, but a little less than that of two, kept under similar conditions. Gasoline costs me 10 cents a gallon and oil (221) about 28 cents. This oil has been the most satisfactory I have ever used.

Experience of over three years has taught me that a little real money in discounts on buying is worth more to me than many high-sounding guarantees. This applies to machines, tires and accessories generally. Adjustments seem to mean a much greater loss of time and energy and money than repairing at the home town or buying at places where discounts are in style. Most automobile and accessories manufacturers seem to keep a very flourishing "circumlocution department," where complaints are received and where broken parts and broken promises are carefully mingled until the unfortunate automobile owner wishes he had borne his grief in silence, rather than waste precious months and break down good protoplasm in trying to get his dues for defective material or overcharges. I still find the village blacksmith or the much-abused plumber or some good factory mechanic the most reliable man for repairs. Our regular garage man advises me to buy a new pump when the old one needs a washer.

GILBERT VAN VRANKEN, M.D., Passaic, N. J.

Warm Legs in Winter.—Every medical man realizes the importance of guarding against the dangerous effects of cold, especially when the strain of practice puts the vital energies to a severe test. In driving an automobile, he must keep his extremities as well as his body warm. By protecting my legs and ankles by leggings during two winters, I have conserved my energy and kept in good physical condition during the severe cold weather, going for long distances in my machine. They have given me more comfort and probably allowed less loss of heat than would have been the case had I used a foot-stove. I believe that my arterial tension has been less during this time. The leggings (178) were designed by a physician for use in his daily practice, because he could not find anything in the market that was both comfortable and convenient. He certainly struck a mighty good thing; they are easily applied and removed.—WYLLYS K. INGERSOLL, M.D., Philadelphia.

Transient Flat Life Requires Physician to Cover Wide Territory.—The practice of medicine in Chicago is no snap, for Chicago to-day is a city of flats, and people move so, that a patient living within a block to-day may be living five miles away next month. It is impossible to hold one's business unless one can answer calls quickly, and this is impossible without a motor car. I have not only held my own, but have increased my business by making distant calls promptly. During the past two years I have averaged about 75 miles a day and have had practically no trouble with my car (166). It is economical and is always ready, winter or summer.—G. A. HIBBERT, M.D., Chicago.

Uneasy works the spark that's clogged with carbon.

AN UNUSUALLY GOOD EXPERIENCE

MY second runabout (212) I have used two seasons; it appears to be good for two more years, if not longer. However, I intend to change it for a more modern one of the same make. Though a low-priced car, it has given me most excellent service. I bought it in March, 1910, for $650, fully equipped. Not till the following October did I spend one cent on it in the way of repair or up-keep. In that month (October) I purchased a spark plug. Even that little spark plug was not necessary, as in looking through the tool box a few days later I found one which had been given me by the agent when the machine was purchased. Thus, my auto cost me nothing during the first season, absolutely nothing, except one unnecessary dollar, outside of the necessary gasoline, lubricating oils and illumination. During the second season the cost was only $10. The company often wrote, inquiring if I needed assistance or information of any kind. They tried to keep in touch with me. Hence, my third machine is going to be, I expect, a more modern model of my present one.

DANIEL CONBOY, M.D., Bad Axe, Mich.

Treated Right, Auto Gives Satisfaction.—Care for your motor-car yourself, but lock up your wrench in your safe. Pay careful attention to your instruction-book, keep plenty of oil, gasoline and water in their places, run the car as you would any powerful machine, and you will get the best results and your automobile will be a pleasure and profit to you. I drove my first car 12,000 miles and only broke a rear spring; the car (174) is running and giving satisfaction to-day. This was a Model 10; I have since run a Model 19 touring car as my family car (see page 1071) and a Model 14 for my practice; I like this plan, as the expense is small to keep up this car, it seems to require less oil and gasoline than any small car I know. The company has always tried to do what was right. From the standpoint of our clay roads, a car of power, durability and strength and a good company back of it is the best proposition.—E. B. HUYCK, M.D., Oak Harbor, O.

Physicians Use Most Automobiles.—Physicians have availed themselves of the advantages of the automobile with more alacrity than any other class. One manufacturer claims that 16,527 cars, or over 30 per cent. of an output of 51,000 cars (222), are owned by physicians. It would be interesting to know what style and price of car, the large and expensive or the small and cheap, met with most favor. This gives the medical profession a lead that is not likely to be overcome for some time. Several other manufacturers would probably make a similar report. Another interesting assertion, from a medical journal, is that there is a larger proportion of automobiles among physicians in small towns than in large cities.

Makes Work Easier.—I have used a 32 horse-power auto (165) for over a year, with very satisfactory results, both professionally and from the standpoint of enjoyment. I find it much easier to do my work with the auto than with the horse; in fact, the work becomes a pleasure. This is a hilly country (see page 1071), but the roads are fair, and I find my machine capable of going practically everywhere.—F. B. BOGARDUS, M.D., Eureka, Mont.

Treads Solve Tire Problem.—Last November I fitted my 32 by 3½ tires with leather treads (168), which have been in daily use ever since, and, excepting a couple of valve leaks, I have had no tire trouble since. My rear tires have not had air added since November last, and they stand at eighty pounds pressure now. As the pavements are very icy at times, I was obliged to add tire chains for the traction wheels, and with this equipment, my tire trouble has been nil.—A. F. KINGSLEY, M.D., Battle Creek, Mich. (167).

A motor in your car is worth two in the shop.